SIERRA LEONE.

Annual Report

ON THE

MEDICAL DEPARTMENT

FOR THE

YEAR ENDED 31ST DECEMBER, 1915.

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SIERRA LEONE.

ANNUAL MEDICAL REPORT FOR THE YEAR ENDING 31ST DECEMBER, 1915.

COLONIAL MEDICAL DEPARTMENT,
FREETOWN, SIERRA LEONE,
22nd May, 1916.

SIR,

I have the honour to submit, for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Medical Report on the health and sanitary condition of the Colony and Protectorate of Sierra Leone for the year 1915, together with the returns, etc., appended thereto.

I have the honour to be, Sir,

Your obedient Servant,

D. BURROWS,
Acting Principal Medical Officer.

The Honourable
The Colonial Secretary,
Freetown.

I.—ADMINISTRATIVE.

STAFF.

The Medical Staff consisted of :—

Principal Medical Officer,
Senior Sanitary Officer,
Provincial Medical Officer,
2 Senior Medical Officers,
Sanitary Officer,
Medical Officer of Health,
18 Medical Officers,
3 Native Medical Officers (Local Staff).

The following changes took place in the staff :—

Dr. D. Burrows was appointed Provincial Medical Officer, this appointment being the first of that rank in Sierra Leone.

Drs. C. H. Allan and T. F. G. Mayer were appointed Senior Medical Officers.

The following Officers were seconded for Service with the Cameroons Expeditionary Forces :—Drs. E. F. Ward, F. E. Whitehead, N. S. Deane, M. C. F. Easmon, T. F. G. Mayer, S.M.O., R. Semple, E. J. Powell, J. M. Clark.

Dr. C. H. Allan acted as Provincial Medical Officer from September 4th to the end of the year.

Dr. E. W. Wood-Mason acted as Senior Medical Officer from May 30th to the end of the year.

Government Dentist.—Mr. H. F. Hardie worked in the Colony for the following periods:—8th May to 26th May and November 14th to December 25th.

Employment of Temporary Assistance.—Dr. Jarrett, Native Medical Officer, retired, was temporarily engaged for duty at the Prison and subsequently in the Colonial Hospital.

Dr. T. C. Maxwell, a native practitioner, was employed temporarily in the Colonial Hospital and subsequently sent to the Scarcies region to deal with an outbreak of small-pox.

European Nurses.—Miss Sutton acted as Matron at the Colonial Hospital for some months during the absence of the Matron, Miss L. R. Stevens, on active service in the Cameroons.

Miss Littlewood also acted as Matron for a short period. Miss Baillie-Churchill was appointed as a Nurse, but her services were terminated.

Miss Robinson, Miss Appleton and Miss I. Stevens were the other nurses.

Native Staff.—The following changes and appointments were made:—

Mr. A. Buckle, Keeper at the Lunatic Asylum, Kissy, died on the 21st February. He entered the Medical Department in January, 1897.

Mr. O. J. Wright was appointed Keeper in his place on transfer from the Prison Department.

Mr. E. G. Luke, 1st Class Dispenser, and the following Dispensers and Nurses did duty with the Cameroons Expeditionary Force during the year: I. B. Doherty, T. C. Williams, A. H. Wyse, C. T. Cole, E. A. Cole, E. T. Ajax, V. Turner.

The old Prison Infirmary, which is practically part of the Hospital buildings, was connected with the verandah of King Harman's ward by a bridge, and the large room divided into cubicles for the accommodation of the female nurses. They all live on the premises now, and in having provided them with airy and decent quarters their health has improved considerably. Incidentally they are more effectively controlled by the Matron, the benefit of whose appointment is now both palpable and gratifying.

FINANCIAL.

Revenue, Medical Department, 1915.

	£	s.	d.
Hospital Receipts	213	18	6
Nursing Home Receipts	129	2	11
Sale of Medicines	412	1	10
Sale of Old Stores and Sundries	12	0	0
Druggists		—	
Departmental Fines	17	15	3
Maintenance of Lunatics	607	12	1
Half-salary of M. O. Railway Construction ...	259	5	1
Total ...	£1,651	15	8

Total expenditure £34,339 2s. 4d.

II.—PUBLIC HEALTH.

GENERAL REMARKS.

The outstanding features under this head are an outbreak of small-pox, and the somewhat abnormal health in the prison in Freetown, the latter quite out of keeping with conditions which are difficult to improve upon.

The total number of patients treated in all Hospitals and Dispensaries was 50,513.

Malarial Fever.—2,221 cases are reported as having been treated during the year. Of these 390 cases were treated at the Colonial Hospital. 389 cases at the Hospital and Prison Infirmary were diagnosed microscopically in the Clinical Laboratory.

The varieties of the parasites detected in the Clinical Laboratory are as follows :—

Subtertian	110
Benign Tertian	3
Quartan	14
Mixed	12

Crescents were found in only 4 cases.

Bilharziasis.—Isolated cases of infection have been noted in past years, and it is gratifying to have Dr. Butler's special report (Vide Section IV., "Scientific") which would indicate a greater prevalence than hitherto suspected. It must be remembered that the facilities now afforded to Medical Officers for microscopical diagnosis and, incidentally, the special training prior to their appointment in tropical disease are matters of comparatively recent development. This statement is volunteered, not as an excuse for the apparent neglect of what is presumably a widespread infection, but in appreciation of the more subtle means of diagnosis now available, which the earlier workers were denied. It is remarkable, apart from the subjective symptoms mistaken for gonorrhœa, that the infection is apparently less severe in its manifestations than in other countries, and that the natives do not regard it or recognise it as a distinct disease. It would seem that the condition is one which presents the analogous phenomenon of widespread infection without the more classical and serious manifestations of constitutional disturbance which has already been noted in the endemic form of ankylostomiasis. Dr. Butler's report is invaluable and opens up a fresh field for investigation which should be conducted when normal conditions have returned. It might be mentioned in this connection that 20 cases of hæmaturia were returned from all stations during the year.

Dysentery.—452 cases were treated in the various Hospitals and Dispensaries. Of these 97 were diagnosed microscopically. The amœbic type was noted in 95 cases and the bacillary in 2 of the cases treated as in-patients, there were 14 deaths.

In the prison in Freetown there were 63 admissions for dysentery and 41 for diarrhœa, resulting in six deaths from the former and 3 from the latter cause. The amœbic infection was noted in the majority of cases. These comparatively high figures caused much anxiety, and special steps were taken to investigate the abnormal health conditions with their attendant high mortality—conditions which were utterly at variance with a standard of accommodation, personal hygiene and surroundings from which

none but gratifying results should have accrued. No evident cause could be discovered, or suggested, but with a view to eliminating a possible source of infection steps have already been taken to provide a more up to date cooking range, to render the kitchen fly-proof, and to instal apparatus for boiling all water for cooking and drinking purposes.

In his report for 1913 the Inspector-General of Jails for the Madras Presidency states that "dysentery seemed to pick out Jails where kitchens are defective and flies are allowed more access to food than they ought to be." It is hoped, therefore, that the improved culinary arrangements will obtain happier results.

Cardiac Disease in the Prison also gave rise to special investigation. It was clearly demonstrated that some obscure affection of the heart supervened among prisoners who had been admitted without any obvious signs of disease. Referring to old records of the Medical Department of this Colony, I find that, in 1873, heart disease among prisoners assumed proportions necessitating an investigation by the Colonial Surgeon at the request of the "Governor-in-Chief."

It was presumably an affection of an infective nature, for 5 deaths supervened among 17 cases between November 28th and December 12th. Unfortunately, no details seem to have been recorded of the symptoms.

Dr. McConaghy has now advanced a theory which is ingenious and which will be more thoroughly investigated when conditions permit the Medical Staff to resume normal duties. Recently a medical authority, reporting on certain jails in Burma, has given it as his opinion that pneumonia is endemic in certain prisons. This report, received after Dr. McConaghy's was made, serves to strengthen his theory of pneumococcal infection producing endocarditis, etc. (Vide Section IV., "Scientific.")

Ankylostomiasis.—Further information will be found in Dr. Butler's special report (Section IV., "Scientific"), and also in the Laboratory Report.

Dr. Arbuckle states that the ankylostome is the commonest intestinal parasite in Sherbro, and fixes the infection index at 68 per cent. In only 5 of 55 cases of infection were any symptoms noted which conformed to the classical type of cachexia from this cause.

Trypanosomiasis.—The visit to this Colony of Professor Warrington Yorke and Dr. Blacklock, under the auspices of the Liverpool School of Tropical Medicine, was alluded to in the Annual Medical Report for 1914. The results of their investigations have been published in the "Annals of Tropical Medicine and Parasitology," Volume IX., No. 3, July 31, 1915, under the headings of "Bionomics and food of Glossina Palpalis," "Reservoir of Human Trypanosomes" and "Certain Animal Parasites of Domestic Stock in Sierra Leone." As a result of their recommendations certain measures have been taken to limit the breeding of glossinæ, from which good results must follow.

Three cases of trypanosomiasis were discovered during the year in Kissy, Makene and Kaballa respectively.

Tuberculosis.—There were 109 cases treated in all Hospitals and Dispensaries. The majority were of the pulmonary variety. In the Colonial Hospital 17 cases were admitted, with four deaths. Of 60 specimens of sputum examined microscopically, 16 were found to contain *B. tuberculosis.* The virulence of infection and the rapidly fatal course of these cases has been commented on as in previous years, and the public seem at last to be waking to an appreciation of the dangers of the disease.

Yellow Fever.—No cases were reported during the year.

Leprosy.—During the year 22 cases were treated, 14 of the nodular and eight of the anæsthetic variety. The interesting discovery of leprosy in a rat, brought to the Laboratory for routine examination for plague, was made by Dr. Butler.

Small Pox.—Although the total number of cases treated in the Colony and Protectorate is given as only eight, it is, unfortunately, necessary to chronicle an outbreak of somewhat serious dimensions in the Scarcies region in October. The epidemic is supposed to have spread from the adjoining French Territory, and as the main trade route from Kindea, in French Guinea, passes south to Kambia, on the Lesser Scarcies River, practically all the towns became infected, especially in the Dixing Chiefdom. Vigorous measures were taken to vaccinate the population, and isolation and disinfection carried out systematically. Unfortunately, the infection has spread, but the disease is in a very mild form, and this feature, added to the extensive vaccination, which is being carried on up to date of writing this report, will ensure comparative freedom for some years. The depletion of Medical Officers owing to the war was seriously felt both for this work and in the extra work thrown on others.

Annual Vaccination Returns.

Year.	Total Vaccinated.	Successful.	Unsuccessful.	Not seen.
1912	10,778	8,516	751	1,511
1913	9,371	6,311	1,191	1,869
1914	6,032	4,323	1,016	693
1915	6,880	4,976	1,278	626

Blackwater Fever.—Four cases were returned from the various Dispensaries and Hospitals, but two other cases were also noted, making a total of six cases.

Hill Station.

The total number of European residents at Hill Station during 1915 was 77, as compared with 74 during 1914. They were divided as follows :—

Government officials	48
Military	4
Missionaries	5
Non-officials (including wives of military and civil officials)	20

The general health was satisfactory.

The rains began early, and the fall during March, April and May was considerably in excess of the average since the records were first started in 1912. The total fall was 165 inches.

Considerable thinning out of the larger trees was effected and the bush cleared further from the bungalows.

The slopes of the hill are being gradually planted with lawn grass which helps to keep down rank growths. A pleasant, parklike appearance is also produced.

Messrs. Elder Dempster and Company have built a fine residence for their agent. This house and those of the Cable Company and the Wesleyan Mission are the only dwellings other than those owned by the Colonial Government and the Military Authorities.

The total number of Colonial houses at Hill Station and at Hill Cot is 36.

GENERAL HEALTH OF EUROPEAN OFFICIALS.

The total number of European officials resident in the Colony and Protectorate was 258, the aggregate of whose residence amounted to 3,043 days.

There were two deaths.

Seven officials were invalided from the following causes:—

1. Hemiplegia.
2. Anæmia.
3. Pyorrhœa.
4. Do. alveolaris.
5. Traumatic headache.
6. Amœbic dysentery.
7. Plantar fibrosis.

GENERAL EUROPEAN HEALTH.

The European residents were composed as follows:—

Officials	258	
Non-officials	223	Europeans
	22	Americans
Military	698	

CLASSIFICATION OF DEATH RETURNS OF EUROPEANS.

Government officials, 2:—

Chronic nephritis	1
Heart disease	1

Military, 2:—

Malaria	2

Non-officials, 10:—

Sunstroke	1
Meningitis	1
Gun accident	1
Malarial fever and hyperpyrexia	1
Bilious remittent fever	1
Hæmatemesis (exhaustion)	1
Malaria (intermittent)	1
Blackwater fever	3

EUROPEAN OFFICIALS—1915.

TABLE SHOWING THE SICK, INVALIDING AND DEATH-RATES OF EUROPEAN OFFICIALS.

	1913.	1914.	1915.
Total number of Officials resident	244	328	258
Average number resident	131	204	158
Total number on sick list...	97	137	139
Total number of days on sick list	948	1,463	1,412
Average daily number on sick list	2·59	4·00	3·86
Percentage of sick to average number of resident ...	74·04	67·15	87·97
Average number of days on sick list to each patient ...	9·77	10·67	10·15
Average sick time to each resident	7·23	7·17	8·93
Total number invalided	13	11	7
Percentage of invalidings to total residents	5·32	3·35	2·71
Total deaths	3	Nil.	2
Percentage of deaths to total residents	1·22	Nil.	0·77
Percentage of deaths to average number resident ...	2·27	Nil.	1·2

NATIVE OFFICIALS—1915.

	1913.	1914.	1915.
Total number of Officials resident	551	713	670
Average number resident	551	700	657
Total number on sick list	1,028	1,000	946
Total number of days on sick list	5,687	5,492	4,453
Average daily number on sick list	15·58	15·04	12·2
Percentage of sick to average number resident ...	186·38	142·85	143·98
Average number of days on sick list to each patient ...	5·53	5·49	4·70
Average sick time to each resident	10·32	7·84	6·7
Total number invalided	7	12	15
Percentage of invalidings to total residents	1·25	1·68	2·23
Total deaths	6	8	3
Percentage of deaths to total residents	1·08	1·10	0·44
Percentage of deaths to average number resident ...	1·08	1·14	0·45

III.—HOSPITALS AND DISPENSARIES.

COLONIAL HOSPITAL, FREETOWN.

The Provincial Medical Officer, Dr. Burrows, was in charge of the Hospital until the 6th September, when he went on leave and his place was taken by Dr. C. H. Allan, who writes this report.

Revenue.—The amounts received from paying patients are as follows :—

Department.	Amount.	Compared with 1914.	Remarks.
	£ s. d.	£ s. d.	
In-patients	213 18 6	Increase 46 13 3	Includes payment for private prescriptions.
Out-patients	86 6 0	Decrease 30 13 11	
Total	300 4 6	£15 19 4	Increase.

In-Patients.—The total number of in-patients was 1,136, compared with 1,443 in the previous year. This decrease is largely due to the shortage in the Nursing Staff caused by the expedition to the Cameroons, and also, because of scarcity of dressings, fewer ulcer cases were admitted. One of the male wards of the hospital was closed throughout the year except for brief periods when it was necessary to admit European seamen.

The total number of deaths was 89, a percentage of 7·8, compared with a percentage of 7·6 in 1914, and it is below the average of recent years. Of these 32 died within 24 hours of admission.

Operations.—The total number of major operations performed was 218, a smaller number than during any year since 1909. The shortage in medical officers was the cause of the decrease.

In addition to the foregoing reports submitted by Medical Officers, which represent the work done at the more important stations in the Colony and Protectorate, it might be mentioned that Dispensers have been stationed at :—

Pujehun. Total cases treated	2,412
Kennema	1,754
Waterloo	2,395
Daru	1,176
Hastings	2,109
Wellington (visited weekly)	538
Regent	1,646
York	1,747
Kent	1,026
Banana Islands...	1,410
Sumbuyah	1,346
Port Lokkoh	1,698
Batkanu	1,103
Kaballa	1,353

Medical Officers are usually stationed at Pujehun, Daru, Batkanu and Kaballa, but, owing to the war, the staff was reduced to a minimum. Arrangements were made, however, for emergency visits to these places.

TABLE OF SURGICAL OPERATIONS.

(Under Chloroform and other Anæsthetics.)

Colonial Hospital, 1915.

	Remaining in Hospital, 31-12-14.	Number Admitted.	Total.	Successful.	Not Relieved.	Died.	Remaining in Hospital, 31-12-15.
Abscesses, incision	1	23	24	24	—	—	—
Amputations	1	26	27	19	—	1	7
Appendicitis	—	2	2	2	—	—	—
Avulsion of toe-nail	—	1	1	1	—	—	—
Buboes, incision	—	11	11	11	—	—	—
Carbuncle	—	5	5	5	—	—	—
Cellulitis, incision for	—	12	12	12	—	—	—
Circumcisions	1	17	18	15	—	—	3
Curetting of uterus	—	4	4	4	—	—	—
Dislocation, reduction of	—	1	1	1	—	—	—
Elephantiasis of scrotum, removal	1	2	3	3	—	—	—
Elephantiasis of vulva	—	2	2	1	1	—	—
Emptying of uterus after delivery	—	1	1	1	—	—	—
Empyema, incision for	—	1	1	1	—	—	—
Enucleation of eyeball	—	1	1	1	—	—	—
Extravasation of urine incision ...	—	2	2	1	—	1	—
External urethrotomy	—	3	3	1	—	2	—
Foreign body, removal of	—	8	8	8	—	—	—
Fracture, compound, amputation ...	—	3	3	2	—	1	—
Gangrene of fingers, scraping ...	—	1	1	1	—	—	—
Gangrene scrotum, incision ...	—	1	1	—	—	1	—
Gland, removal of	1	—	1	1	—	—	—
Harelip, suture iredectomy ...	—	1	1	1	—	—	—
Hernia, radical cure	—	12	12	10	2	—	—
Hydrocele, radical cure	—	5	5	4	—	1	—
Hysterectomy (complete)	—	1	1	1	—	—	—
Incised wound, etc.	—	1	1	1	—	—	—
Laceration, cleaning, etc.	—	1	1	1	—	—	—
Ligaturing of artery	—	3	3	3	—	—	—
Mastoil, opening of	—	1	1	—	—	1	—
Osteomyelitis, scraping & drainage	—	5	5	4	1	—	—
Paracentesis of liver	—	1	1	—	1	—	—
Paracentesis of knee joint... ...	—	1	1	1	—	—	—
Prolapsis ari replacement	—	1	1	1	—	—	—
Sapraemia, douching, etc.	—	1	1	—	—	1	—
Scraping of abscess...	—	2	2	2	—	—	—
Scraping of bones	—	7	7	7	—	—	—
Scraping of gland	1	2	3	3	—	—	—
Scraping of sinus	—	1	1	1	—	—	—
Scraping of ulcer	—	3	3	3	—	—	—
Skin grafting	—	1	1	1	—	—	—
Strangulated hernia	—	7	7	4	—	3	—
Stricture dilating	—	4	4	3	—	1	—
Stricture of rectum, dilation ...	—	1	1	1	—	—	—
Suppurative arthritis, scraping ...	—	1	1	1	—	—	—
Tumours. various, removal of ...	—	15	15	14	—	—	1
Varicocele	—	1	1	—	1	—	—
Ventral fixation of Uterus ...	—	1	1	1	—	—	—
Vesico vaginal fistula, suturing ...	—	1	1	1	—	—	—
Whitlow, incision for	—	4	4	4	—	—	—
Total	6	212	218	188	6	13	11

Out-Patients.—The number of out-patients was 8,181, with 10,948 subsequent attendances This is only a slight decrease compared with the previous year, and is partly due to the popularity of the Cline Town Dispensary.

Three hundred and eighty-five cases of malarial fever, mostly diagnosed in the Laboratory, were treated during the year.

Twenty-three cases of dysentery were admitted into Hospital, of these 16 were amœbic, and were treated with injections of emetine; 13 of these were cured.

Tuberculosis, mostly in the form of phthisis, accounts for 17 admissions, with 4 deaths. This compares with 25 cases and 11 deaths in the year 1914, but the decrease may be only apparent, as it was impossible to do as many post mortem examinations during the current year.

The emergency cases treated in addition to the above numbered 697.

C. H. ALLAN,
Senior Medical Officer.

ANNUAL REPORT ON THE NURSING HOME.

Nursing Home Staff.—The European Nurses attached to the Home were :—

Miss K. Appleton,
Miss I. Stevens,
Miss Bailey Churchill,
Miss E. M. Robinson,

the two latter for a few weeks only. The usual plan of detailing Male Native Nurses for night duty and Female Native Nurses for day duties has continued, and the Nurses of the Colonial Hospital have all in turn a chance of learning to attend on European Sick.

Sixty-six cases were admitted during the year; of these 40 were Officials.

The following table shows the diseases treated and their number :—

Diseases treated.	Officials.	Non-Officials.	Total.
Malarial fever	12	20	32
Blackwater fever	1	1	2
Dysentery	3	1	4
Rheumatism	1	—	1
Jaundice	1	—	1
Pyorrhœa Alveolaris	2	—	2
Ulcers	3	—	3
Influenza	3	—	3
Dis. of Nervous System	4	—	4
Nephritis	1	—	1
Dis. of Circulatory System ...	2	—	2
Syphilis	1	—	1
Other Diseases	6	4	10
Total ...	40	26	66

There were three invalidings, from traumatic headache, amœbic dysentery and plantar fibrositis; all were officials.

Two officials died, from chronic nephritis and mitral disease respectively.

The total amount of fees collected was £156 15s. 0d.

C. H. ALLAN,
Acting Provincial Medical Officer.

COLONIAL HOSPITAL CLINICAL LABORATORY, 1915.

To the Honourable the Principal Medical Officer.
From the Medical Officer, Laboratory.

Sir,

I have the honour to forward you the Annual Report for the year 1915 on the work done in the Colonial Hospital Clinical Laboratory.

Dr. Butler was in charge during the first quarter; Dr. Semple from the beginning of April till the 20th of June; Dr Wood-Mason from that date till the 8th of September, when he was relieved by me.

Mr. Easmon was Laboratory Assistant up till May 8th, when he was relieved by Mr. Roberts.

The total number of specimens examined was 2,922 in routine work, as well as 169 re-examinations. Some special examinations were made in addition, which will be enumerated later. A clinical analysis of water from the Freetown Water Supply has been made every week since the middle of September. A full analysis of the work done is appended hereto.

I have the honour to be, Sir,

Your obedient servant,

J. McCONAGHY.

Faeces.

	In-patients.	Out-patients.	Prisons.
Negative	158	5	38
Ankylostome, Ascaris Tricocephalus	8	—	—
Ascaris	51	—	9
Ankylostome, Tricocephalus	35	1	2
Ankylostome, Ascaris	43	—	3
Ascaris, Tricocephalus	15	1	—
Ankylostome	65	2	14
Ankylostome, Amœbæ	5	—	—
Bilharzia	1	—	—
Tricocephalus, Amœbæ	2	—	—
Tænia	1	—	1
Tænia, Ankylostome	1	—	—
Bilharzia, Ankylostome	1	—	—
Blood and Mucus	8	1	4
Amœbæ, Blood and Mucus	19	1	15
Tricocephalus	14	1	2
Ankylostome, Tricocephalus, and Tænia	1	—	—
Ascaris, Strongyloides	4	—	—
Tænia, Tricocephalus	2	—	—
Ankylostome, Tricocephalus, and Amœbæ	1	—	—
Ankylostome, Tricocephalus, Amœbæ, and Strongyloides	1	—	—
Ankylostome, Ascaris, Amœbæ	1	—	—
Ascaris, Amœbæ	1	—	—
Strongyloides	3	—	—
Ankylostome, Strongyloides	1	—	—
Total	442	12	88

Grand Total	542
Re-examinations	102

BLOOD (FOR MALARIA).

	In-patients.	Out-patients.	Prisons.
Negative	25	186	39
Sub-Tertian	21	75	10
Subtertian and Quartan	3	7	—
Subtertian with crescent	1	1	—
Quartan	—	14	—
Crescents (alone)	—	2	—
Subtertian and Benign Tertian	—	2	—
Benign Tertian	—	1	2
TOTAL	50	288	51

Grand Total	389
Re-examinations	5

NIGHT BLOOD.

	In-patients.	Out-patients.	Prisons.
Negative	614	—	14
M.F. Nocturna	52	—	4
M.F. Perstans	3	—	—
TOTAL	669		18

Grand Total	687
Re-examinations	5

DAY BLOOD.

IN-PATIENTS ONLY.

Total.	Negative.	M.F. Perstans.	Inj. Diurna.
58	53	4	1

SPUTUM.

	In-patients.	Out-patients.	Prisons.
Negative	14	12	2
Tubercle Bacilli	7	7	2
Pneumonia...	6	3	7
TOTAL	27	22	11

Grand Total	60
Re-examinations	4

PUS (Chiefly Urethal).

Out-patients only.

Total.	Negative.	Gonnococci.
21	2	19

URINE.

	In-patients.	Out-patients.	Prisons.
Normal	236	283	34
Trace of albumen	183	111	—
Cloud of albumen	68	23	1
Abundant albumen	51	11	—
Pus	15	1	—
Casts	34	7	—
Sugar	2	4	—
Threads	29	69	—
Blood	7	4	—
Bilharzia	—	1	1
Total	625	504	36

Grand Total	1,165
Re-examinations	53

In addition to the above one Widal's agglutination test has been made—Positive.

One Wassermann—Positive.

On scraping from chancre (Indian ink method)—Negative.

Trypanosomes have been found in the blood of one patient (apparently of Gambiense type).

ANNUAL MEDICAL REPORT OF THE PRISON DEPARTMENT.

To the Honourable the Principal Medical Officer.
From the Medical Officer—Prisons.

Sir,

I have the honour to forward the Annual Medical Report of the Prison Department. Dr. Jarrett was in charge till August, when he was relieved by Dr. Easmon. Dr. Easmon was relieved by me early in September.

An additional nurse has been appointed for night duty, making in all three on the native staff.

The health of the European staff has been good.

Of the native staff, 42 were treated, 21 of whom were admitted to the Colonial Hospital. Seven were invalided and one died.

HEALTH OF PRISONERS.

Out-patients.—5,120 attended the dispensary, 2,314 being new cases and 2,806 being subsequent attendances.

Many of the complaints were trivial, *e.g.*, skin diseases, constipation, myalgia ; but a considerable number of these patients were treated for cardiac disease.

In-patients.—352 patients were treated in hospital ; 28 of these died. The chief diseases were : cardiac disease, dysentery, diarrhœa, and diseases of the lungs.

There have been 63 admissions for dysentery and 41 for diarrhœa. There were six deaths from the former and three from the latter disease.

No. 1 Observation Ward has been made into a special isolation ward for dysentery cases.

The great majority of these cases were of the amœbic variety. Ten prisoners were certified as insane and sent to the Lunatic Asylum.

GENERAL SANITARY CONDITION.

The sanitary condition of the prison is good. The yard has been macadamized and a new drain made, which bears off all surplus water during the rains. A new cooking apparatus has been ordered, and a suggestion that the new enlarged kitchen should be made fly-proof has been approved.

STATISTICS FOR 1915.

In-patients.

In hospital at end of 1914	14
Admitted during 1915	338
Total	352

		March Quarter.	June Quarter.	September Quarter.	December Quarter.	Total.
	Admitted	65	49	75	149	338
Discharged.	Cured	42	42	41	92	216
	Relieved	5	3	31	33	72
	Not relieved	0	1	1	4	6
	Died	12	9	5	2	28

In hospital at end of 1915 30

Causes of Deaths.

Dysentery	6	Endocarditis ...	1	Abscess	1
Myocarditis	3	Aneurism	1	Emphysema ...	1
Diarrhœa	3	Aortic Incompetence	1	Pneumonia ...	1
Enteritis	1	Intestinal Tuberculosis	1	Cirrhosis of liver ...	1
Pleurisy	1			Uræmia	1
Cystitis	1	Fatty degeneration of the heart... ...	1		
Anæmia	1				
Ankylostomiasis ...	1	Asthma	1		

Out-patients.

	New Comers.	Subsequent Attendances.
March Quarter	398	514
June ,, ...	426	586
September ,, ...	681	774
December ,, ...	850	982
Total	2,355	2,856

Daily Average Number of Prisoners.

Males	253
Females	6

	New Comers Examined.	Prisoners Examined.		Executions.
		For Solitary Confinement.	For Corporal Punishment.	
March Quarter ...	180	175	4	2
June ,, ...	169	108	8	0
September ,, ...	168	145	4	1
December ,, ...	214	90	3	1
Totals ...	731	518	19	4

I have the honour to be, Sir,
Your obedient servant,
J. McCONAGHY, *M.O., Prison.*

Freetown,
25*th January*, 1916.

APPENDIX TO MEDICAL REPORT ON PRISON FOR 1915.

To The Honourable, The Principal Medical Officer

From The Medical Officer—Prisons.

Sir,

I have the honour to forward you an epitome of the measures taken by the Medical Department in 1915 to enquire into the somewhat high death-rate in the Freetown Prison. A board was appointed to investigate this matter. This board consisted of Drs. Burrows, Wood-Mason, Semple and Jarrett.

The finding of the board was as follows :—

1. That the sanitary condition left nothing to be desired.

2. That the food was abundant, varied, and well-cooked. A suggestion was made that limes and tomatoes should be added to the dietary. This suggestion was carried out.

3. *Bedding.*—Each prisoner has a bed-board, two blankets and a mat. This seems to be sufficient.

4. *Clothing.*—All prisoners have serge suits, which can be augmented, at the option of the Medical Officer, by singlets and sandals.

5. That as all drinking-water is boiled there can be little or no risk of infection from this source.

A sample of each of the native food-stuffs was sent to the Government Analyst at Lagos, and from the data supplied by him the food values were worked out.

On taking over the Medical Department of the Prison early last September, I was much struck with the great amount of cardiac disease to be found in the Prison, and have made a careful investigation into this matter.

I have already sent a report on seven cases of endocarditis following bronchitis with pneumococci in the sputum. No deaths occurred in the cases, and so I have been unable to prove that the endocarditis was really of pneumococcal origin.

It is a fact, however, that new-comers whose hearts appear on examination to be sound frequently develop symptoms of endocarditis within a short time of coming to prison.

I do not think that this can altogether be accounted for by "hard labour," as many of them are wharf labourers, carriers, etc., whose usual work is more severe than the "hard labour" of the prison.

I have come to the conclusion that heart affections are the most serious factors to be dealt with in investigating the disease incidence and death-rate of the Freetown gaol, and that the affections cannot be altogether accounted for by "hard labour," ankylostomiasis, or previous organic heart disease before coming to prison.

Patients in this condition of cardiac breakdown cannot well resist infection by the germs of dysentery, pneumonia or other diseases which tend to be endemic in this country, and do badly when infected.

I have the honour to be, Sir,
Your obedient Servant,
J. McCONAGHY.

9th February, 1916.

ANNUAL REPORT OF CLINE TOWN FOR 1915.

Dr. Mayhew was in charge up to September, then Dr. Clarke until December and Dr. Nicholson up to the end of the year.

The health of the European Staff was on the whole good. There were sixty-three on the Sick List. This is not a large number, when the strenuous nature of the work is taken into consideration, as a man has to declare off duty for slight indispositions which would not interfere with his work if it was of a lighter nature.

The number of Europeans at this Station has been about 30 during the year.

The number of patients treated in the Dispensary was 7,006, with 6,301 subsequent attendances. The fees taken amounted to £170 0s. 6d.

The chief diseases treated were those of the digestive and respiratory systems: constipation 882, dyspepsia 1,058 and bronchitis 549.

W. A. NICHOLSON.

26th January, 1916.

ANNUAL REPORT AND RETURNS OF THE KISSY INSTITUTIONS.

To the Honourable the Principal Medical Officer.
From the Medical Officer, Kissy.

Sir,

I have the honour to forward you the Annual Report and Returns of the Kissy Institutions for the year ending December 31st, 1915.

The following Officials visited the Institutions during the year, namely :—

His Excellency the Acting Governor.
The Honourable the Principal Medical Officer.
The Senior Sanitary Officer.
The Provincial Medical Officer.
The Senior Medical Officer.
The Junior Sanitary Officer.
The Medical Officer of Health.
The Assistant Director of Public Works.

Changes in the Staff.—Owing to the death of the late Keeper, A. R. Buckle, which occurred in February, the Medical Dispenser, I. H. Wright, was appointed Acting Keeper from March to July, 1915 ; he performed his duties satisfactorily. On the 1st of August, Principal Warder O. J. Wright was appointed Keeper of the Asylum.

Lunatic Asylum.—At the beginning of the year there were 97 males and 30 females. During the year 42 males and 4 females were admitted, making a total of 173 patients under treatment. The number of those relieved and discharged to the care of their friends was 13, viz. :—10 males, 3 females. No patient absconded, 23 died ; leaving a total of 110 males, 27 females at the end of the year.

Deaths.—These were due to epilepsy, chronic Bright's disease, chronic mania, dysentery, general debility, empyema, and trypanosomiasis.

Epidemics.—One case of chicken pox and one case of small-pox were discovered and admitted into the Infectious Diseases Hospital. The case of small-pox was Dispenser Hooke. He probably contracted his attack from a severe case which was admitted into the Infectious Diseases Hospital during the month of September. His case was of average severity, and he was residing at the administration block of the Male division of the lunatic asylum at the time of his infection. In consequence of this, the whole Asylum and Female Incurable Hospital were placed under strict quarantine. The inmates and the whole of the staff and the Medical Officer were revaccinated.

Female Incurable Hospital.—There were 27 patients at the beginning of the year. 52 patients were admitted, making a total of 79. Of these, 38 were relieved and discharged, and 17 died, leaving 24 patients at the end of the year.

The deaths were due to paralysis, epileptic exhaustion, senility, chronic septic ulcers, syphilis, general debility, cardiac failure, and septicæmia.

Male Incurable Hospital.—50 patients were remaining at the beginning of the year ; 101 patients were admitted, making a total of 151 patients. Of these, 68 were relieved and discharged, 53 died, leaving 30 patients at the end of the year.

Leper Asylum.—At the beginning of the year there was one patient, four were admitted, two absconded, one died; remaining at the end of the year, two.

Infectious Diseases Hospital.—Nine cases of small-pox, viz.:—Eight males and one female, and four cases of chicken-pox were admitted during the year.

Meteorological Observations.—The highest maximum shade temperature registered was 101° F., on the 13th September, and the lowest minimum shade temperature registered was 55° F., on the 13th January. The rainfall for the year was 150·87 inches.

Lazaretto.—There were 12 persons (labourers and attendants at the Lunatic Asylum) admitted under observation during the year.

KISSY DISPENSARY.

New cases	1,257
Subsequent attendances	1,677
Total	2,934

WELLINGTON.

New cases	538
Subsequent attendances	350
Total	888

(A decrease of 610 compared with 1914.)

W. O. TAYLOR,
Medical Officer.

KISSY,
25*th January*, 1916.

BONTHE—SHERBRO DISTRICT.

ANNUAL MEDICAL AND SANITARY REPORT FOR YEAR 1915.

The staff consists of 1 Medical Officer, 1 dispenser, 1st class, 1 dispenser, 3rd class, 1 male nurse, 1 female nurse, 1 cook, 1 laundress, 49 labourers and 3 sanitary constables.

Dr. C. H. Allan, S.M.O., was here till the end of April, and was then relieved by Dr. T. F. G. Mayer, S.M.O., who remained till the end of June; for the remainder of the year Dr. H. E. Arbuckle was here.

The total receipts from all sources were £136 19s. 2d. The total expenditure has been £1,505 12s. 0d.

The general health of the district has been fairly good; no epidemics of any kind have been reported. Elephantiasis is very prevalent.

Only two European officials are resident in Bonthe—the D.C. and the Medical Officer. No European official has been placed on the sick list.

The number of native officials has been 146. Their health has been good, only 28 having been on the sick list for a period of 134 days—that is a sick rate of less than one day per official. There have been no invalidings or deaths.

The rainfall was excessive, namely, 192 inches.

Hospitals and Dispensaries.—There were 2,033 out-patients treated, the chief diseases being ulcers (resembling those described by Dr. Breinl in New Guinea), constipation, rheumatism, dyspepsia and bronchitis.

The in-patients numbered 229; their chief diseases were ulcers, elephantiasis, malaria, hernia and dysentery.

There were 12 deaths.

The number of surgical operations performed was 60.

The natives seem to be losing their dread of surgical intervention, and there is an increasing demand for operation, especially for elephantiasis scroti, hernia and hydrocele, all of which seem particularly common in Sherbro.

Several cases of ulcers have been treated with salvarsan with the same very beneficial results obtained last year in Freetown.

The ankylostome is the commonest intestinal parasite next to the ascaris. The former occurs in at least 68 per cent. of cases. Of 55 cases which I examined only five showed any symptoms ascribable to the worm.

The Hospital is badly in need of repairs; it leaks very much and it is too small to meet the increasing demand for treatment.

The operating theatre—a part of the wooden verandah which has been closed in—is too small, too dark and too difficult to keep clean.

Appended is a table of surgical operations performed.

H. E. ARBUCKLE,
Medical Officer.

19*th January*, 1916.

TABLE OF SURGICAL OPERATIONS DONE IN BONTHE HOSPITAL IN 1915.

Dilatation of urethral stricture	2
Uterine fibroid, removal	1
Fibroma, excision...	3
Peritoneal cavity, removal of foreign body	1
Necrosed bone, removal	1
Umbilical hernia, radical cure	1
Abscesses, opening and draining	6
Cellulitis, incision	2
Amputation of leg	1
Elephantiasis scroti, removal	8
Ulcer of leg, scraping of...	1
Lipoma, removal of	1
Cysts, excision of...	5
Foreign body in sole of foot, removal of	1
Testicle, removal of	1
Ganglion of wrist, excision of	2
Amputation of toe	1
Osteomyelitis, scraping medullary cavity	1
Dropsy, drainage...	1
Myeloma of radius	1
Fibromatous ulceration, excision of	1
Inguinal hernia, radical cure	5
Hydrocele, radical cure	4
Intravenous injection of salvarsan	9
TOTAL	60

MEDICAL REPORT, 1915.—MOYAMBA.

Staff—1 Medical Officer, 1 Dispenser, 1 hospital labourer.

Financial.

	£	s.	d.
Total revenue	5	18	4
„ Expenditure on personal emoluments ...	656	8	6
„ „ „ Other charges	145	0	0

Public Health.

No epidemics occurred during the year. The health of European and Native officials was good.

The average number of European officials in this District was twelve. No deaths occurred during the year. Twenty-two in all were placed on the sick list—the total number of days on the sick list was 109. There were no invalidings.

Most of the cases were malarial fever (æstivo-autumnal), the others were boils, gastritis and jaundice.

Native Officials.—The average number of these is eighty-three, comprising clerks, court messengers, warders and mail carriers. Thirty were placed on the sick list, with a total of 154 days. There were three deaths, and no invalidings.

The diseases with which these suffered from chiefly were malarial fever, bronchitis, pneumonia and boils. The three deaths were caused by heart disease (2) and urinary fistula with exhaustion.

Return of Diseases and Deaths for the Year.

Europeans.—Malarial fever, 7 ; others, 15.

Natives.—Malarial fever, 117 ; dysentery, 17 ; tæniasis, 106 ; others, 2,073. Deaths, 3.

Meteorology.—No unusual occurrences were noted during the year. The total rainfall was 99·44 inches.

J. S. PEARSON,
Medical Officer.

ANNUAL REPORT FOR BO.

From the Medical Officer, Bo,
To the Hon. The Principal Medical Officer, Freetown.

Sir,

I have the honour to submit the Annual Report for this station for the year 1915.

During the year the station has been in charge of the following Medical Officers :—

Dr. McConaghy ...	... January 1st to April 25th ;
Dr. Arbuckle ...	... April 25th to June 20th ;
Dr. O'Connell ...	... June 20th to August 30th ;
Dr. Butler	... August 30th to December 31st.

There was a great increase in the amount of work in this station during the latter half of the year, owing to the Medical Officers from Daru and Kanre Lahun being sent with the Expeditionary Force to the Cameroons. This left the Medical Officer, Bo, in sole medical charge of the Railway from Mattru to Pendembu.

European Officials.—In the Bo District there were 15 European officials as follows: at Bo, seven Railway, three School, one Medical; and at Mattru, Jerihun, Blama and Hangha, one Railway official each.

There were two non-official Europeans at Bo, three at Jerihun and eight at Blama.

There were 14 European officials on the sick list for a total of 201 days. Six of them were sent to the Nursing Home, Freetown. There were no deaths.

The chief cause of sickness among Europeans was malaria. Eight officials were on the sick list for 97 days, suffering from malaria.

There were 28 Native officials on the sick list for a total of 305 days.

Hospital.

	1914	1915
New Cases	2,392	2,077 + 46 in-patients.
Subsequent Attendances	1,550	1,526
TOTAL ...	3,942	3,603

The chief diseases were constipation, rheumatism, ulcers, bronchitis, digestive troubles and venereal diseases.

Operations.—There were three operations done during the year:—Removal of supernumerary breast; repairs to cut throat; replacement of intestines through punctured wound in the abdomen.

Hospital Fees amounted to £7 16s. 6d.

There were 46 in-patients and only one death. This death was due to a gunshot wound in the abdomen.

Dispensaries.—Kennema was visited once weekly, and during the last half of the year, Daru was visited twice a month. The Railway quarters at Pendembu, Daru, Hangha, Blama, Gerihun and Mattru were visited and reported on once a month.

P. A. CLEARKIN,
Medical Officer.

Bo,
25th January, 1916.

ANNUAL REPORT, MAKENE, SIERRA LEONE PROTECTORATE, JANUARY, 1916.

Staff—1 Medical Officer, 1 Dispenser, 1 dispensary labourer, 2 sanitary labourers.

Dr. Semple was relieved by Dr. W. F. Campbell, June 28th.

The general health of the station and district for the past year has been on the whole very good. The rainy season was not attended with any unfavourable results.

The number of European officials working on the Construction and S.L.G. Railway was 18; the general health has been excellent. Twelve were placed on the sick list; there was one invaliding, and no deaths.

The number of Native officials was 38, the general health has been fairly good. Thirty-four were placed on the sick list; there was one invaliding, and no deaths.

Hospital and Dispensary.—There are two temporary buildings:—One a native round hut with thatched roof for the W.A.F.F. and the other made of galvanized iron, and the roof covered with palm. This building is used for minor casualties of the Construction, and is provided with three wooden beds. No improvement was necessary. In future it will be necessary to have a permanent Hospital with Dispensary erected, Makene being an important centre for trade and from a military point of view.

In-patients.—23 were admitted to Hospital during the year.

Out-patients.—The number of new cases was 1,665, while there were 1,554 old cases or subsequent attendances, making a total for the year of 3,242.

The prevailing diseases treated were:—Malaria, æstivo-autumnal, rheumatism, bronchitis, worms, syphilis, gonorrhœa, dyspepsia, diarrhœa, lumbago, ulcer, abscess, periostitis, caries of teeth.

	Total No. of Cases.	No. of Days on S.L.
Europeans	12	91
Natives	34	159

W. F. CAMPBELL,
Medical Officer.

MAKENE,
26*th January*, 1916.

IV.—SCIENTIFIC.

The following Medical Officers have submitted original articles of scientific interest :—

Dr. J. McConaghy, Dr. G. G. Butler and Dr. E. W. Wood-Mason.

Entomology.—Dr. Wood and Dr. Beringer made collections of blood-sucking insects, which were identified by the Imperial Bureau of Entomology. A brief summarised list is given below. One specimen of *Tabanus* forwarded by Dr. Wood was not known in the British Museum, and one specimen of *Culex* sent by Dr. Beringer is probably new.

Dr. Beringer.

Collections of Larvæ and Imagoes of Culicidæ :—

Tabanidæ	4	species
Muscidæ	2	„
Pulicida	1	„

Dr. Wood.

Anophelinæ	7	species.
Stegomyiæ	3	„
Culicyomyia	1	„
Culicinæ	6	„
Tabanidæ	5	„
Muscidæ	5	„
Pulicida	1	„
Cimicida	1	„

Two Cases of Malarial Fever Treated with the Enzymes "Amylopsin" and "Trypsin."

Dr. Wood-Mason's Case.

Female, aged 26. On admission "pneumonia" was suspected, but blood examination disclosed sub-tertian and quartan parasites. One ampoule each of trypsin and amylopsin (Fairchild) diluted to 10 c.c. with normal saline solution were injected into the gluteal region at 2 p.m. On the 25th December at 3.20 p.m., patient who was 8 months pregnant aborted (this was her third child). There was some slight p.p. hæmorrhage and an emergency M.O. unfortunately gave her 5 grs. quinine sulphate. She had no more quinine. Temperature became normal at 2 p.m. on the 26th, and the blood examination showed quartan parasites only. On the 27th there were no parasites in the blood and a second injection was given. No more parasites were found and patient recovered.

This case tends to show that injection of amylopsin and trypsin are contraindicated in pregnancy.

Dr. McConaghy's Case.

Male, aged 50. Had violent rigors. T. 101°. Blood showed subtertian infection. Similar injection given as in Dr. Wood-Mason's case above. In 5 minutes patient sweated profusely and felt better.

Temperature next morning was 99°. It rose to 99·6° in the day and quartan parasites were now found.

No more parasites were found on the two succeeding days. Both Drs. McConaghy and Wood-Mason noted that the blood on making the puncture for the slides was abnormally fluid. It did not form the usual "drop" but spread all over the finger, and could not be manipulated to form the usual satisfactory blood film.

TABLE OF RESULTS OF EXAMINATIONS OF FÆCES FOR INTESTINAL PARASITES, BONTHE, SHERBRO.

Ankylostome	21
Ankylostome and Ascaris	6
Ankylostome Ascaris and Trichiurus	3
Ankylostome and Trichiurus	3
Ankylostome and Strongyloides	2
Ankylostome Trichiurus and Strongyloides ...	1
Ankylostome and Oxyuris	1
Ascaris...	5
Ascaris and Strongyloides	1
Ascaris and Lamblia	1
Amoeba...	6
Trichiurus	2
Taenia	1
Negative	8
TOTAL CASES	61
Ankylostome present	37

H. E. ARBUCKLE.

SOME OBSERVATIONS MADE ON APPARENTLY HEALTHY BOYS AT THE BO SCHOOL FOR THE SONS OF CHIEFS.

Owing to the request that all reports should be made as brief as possible, the following forms an abstract of a more lengthy report on the above subject.

Seventy-five scholars of the Bo School were examined at the end of the rainy season in November and December, 1915.

Mendis, Timnees and Konnohs are the tribes chiefly represented, and the average age worked out at $10\frac{1}{2}$ years.

All the individuals appeared healthy, judging by general appearances and behaviour.

The following examinations were carried out :—

1. The Malaria parasite rate.
2. The Splenic Index.
3. Presence of Bilharzia infections.
4. Examination for Ankylostomes.
5. Examination for Filariasis.
6. Albuminuria in apparently healthy children.

1. *The examination for Malaria.*—The morning blood was examined as a thin film and stained by Leishman's stain. Each film was only examined for five minutes under 1/12th objective, so that comparable results could be obtained. 37·3 % of the 75 boys showed the presence of malaria parasites, even after such a cursory examination. The parasite appeared to be of the subtertian variety in all cases except two.

The parasite rate was noticed to vary in direct relation to the age groups—the groups with a low average age having a higher malaria parasite rate than those groups with a high average age.

2. *Splenic Index.*—The same 75 boys were examined from this point of view, and 50 % showed some enlargement of Spleen, which is within a pardonable error of the 37·3 % malaria parasite rate found from a very brief blood examination.

3. *Presence of Bilharzia infections.*—The decision to examine the school-boys for this disease was arrived at because the bathing conditions which obtain in the school appeared to be admirably adapted for the spread of the disease, and because almost the first boy that was seen professionally complained of having "gonorrhœa," which proved to be a urinary infection with Bilharzia. I had previously formed an opinion that natives do not always differentiate the symptoms of gonorrhœa from urinary Bilharziosis, for I had come across several cases of Bilharziosis who originally came complaining of "the running" or "gonorrhœa." The Mendi name "Kanye" is used to describe both gonorrhœa and urinary Bilharzia, though they do distinguish a white variety or gonorrhœa proper and a red variety or urinary Bilharzia. Bilharzia infections have always been regarded as rare in Sierra Leone, and the annual medical reports for the last ten years only mention five cases altogether. The same 75 boys were examined for this condition, and by simple microscopical examination 26·6 % were found to show the presence of Bilharzia ova. If the cases are arranged into tribe groups the biggest proportions are seen to occur among the Kissies and Konnohs, while no cases at all occur among the Timnee boys of the school.

Tribe.	Average age.	Total examined.	Bilharzia cases.	Percentage.
Kissy	7·2	5	3	60 %
Mendi	10	36	9	25 %
Konnoh	11	13	8	61·5 %
Timnee	12·6	17	0	—
Susu	—	2	0	—
Foulah	—	1	0	—
Sherbro	—	1	0	—
TOTALS ...	10·6	75	20	26·6 %

These Bilharzia-infected boys come from 19 different towns in the Protectorate, and a spot map was made showing this. A complete absence of Bilharzia infections is notable among the Timnee boys of the school, and on enquiry the Timnee district appears to differ from the Konnoh district in that the latter is a country of many permanent streams, while the former is almost completely dried up during the dry season. The definite tribal incidence that is noted suggests that the bathing arrangements of the school have nothing to do with the presence of the disease amongst the pupils.

The Kennema district is infected with Bilharzia, and the streams surrounding this town are swarming with snails which appear to be similar to the snail that has been recognised as the intermediary host for the human Bilharzia of Egypt: I have not had the opportunity of proving the point by dissection of snails.

As the Kennema district is to be the site for the new school it appears, from a prophylactic point of view, to merit enquiry as to whether the intermediary host exist where the new school is to be.

Among the cases of Bilharzia infection occurred four cases who showed no signs of cystitis, though living ova were found in the urine. Two of these cases denied ever having had any urinary symptoms, and the other two stated they knew they had the disease 8 or 9 years ago and now regarded themselves as cured. These four boys were aged 15 to 16 years, and are amongst the oldest boys in the school, where they have been five or six years. It would appear therefore that urinary Bilharzia disease may eventually be present without causing any signs of cystitis whatever, and without giving any trouble to the host, though in young children most severe signs of cystitis are usually present.

4. *Examination for Ankylostomes.*—The same 75 boys were examined also for this condition, and in only one case was there a negative result; that is, 98·6 per cent. showed the presence of Ankylostome ova.

I think these cases may be regarded as fairly heavy infections, because in 59 of the cases (that is roughly 80 per cent.) the ova were found in a single examination of crude fæces.

None of the individuals showed any symptoms or signs suggestive of Ankylostomiasis. Duffers and individuals of acute intelligence appeared equally infected, and the standard of the school sports is quite as high as the average English public school, so that I could not detect any evidence suggesting that these individuals suffered any disability from harbouring the parasite at that particular time, though symptoms of Ankylostomiasis might quite likely appear if the individual were placed under some untoward condition, such as semi-starvation, when the Ankylostome toxins might get the upper hand.

5. *Presence of Filariasis.*—The 75 boys had their day and night blood examined, and 9·3 per cent. were found to harbour microfilaria. The microfilaria were found in the night blood, except in one case, where there was a scanty infection in the day blood as well. The microfilaria were all sheathed, and conformed apparently to the microfilaria nocturna type. There were no symptoms of filariasis in these cases.

6. *Albuminuria in apparently healthy children.*—The same group of boys were systematically examined for albuminuria. After excluding the Bilharzia cases there remained a certain number (21·8 per cent.) who showed albumen in the urine without evidence of renal disease or other obvious cause. By a simultaneous examination of the blood of these cases it was found that 73·3 per cent. of the cases that showed albuminuria also harboured malaria parasites in their blood, and the harbouring of malaria parasites and traces of albuminuria appeared to be cause and effect.

G. G. BUTLER.

December, 1915.

RETURN SHOWING DETAILS OF CASES TREATED IN EACH MEDICAL DISTRICT IN THE YEAR 1915.

Diseases.	With Medical Officers.													With Dispensers only.									Total.
	Freetown Hospital.	Cline Town.	Freetown Gaol.	Kissy.	Moyamba.	Bo.	Makene.	Bonthe.	Pujehun.	Kennema.	Waterloo.	Daru.	Wellington.	Hastings.	Regent.	Kent.	York.	Banana Islands.	Sumbuyah.	Port Lokkoh.	Balkanu.	Kaballa.	
Infective Diseases—																							
Beriberi	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cerebro-Spinal Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chicken-pox	5	—	—	—	2	1	1	—	1	6	12	5	—	—	1	—	—	—	4	—	—	1	39
Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Dengue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dysentery	34	57	84	11	17	13	3	6	108	24	30	12	—	14	1	4	4	—	14	12	3	1	452
Endocarditis (Infective)	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Enteric	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Erysipelas	6	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Gonorrhœa	176	80	34	5	56	46	23	43	211	81	36	65	2	11	7	18	8	9	55	44	27	41	1078
Influenza	40	—	1	—	1	6	—	4	—	—	—	—	—	—	—	—	—	—	—	1	—	—	53
Kala-Azar	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Leprosy (*a*) Nodular	—	—	—	—	1	4	—	1	—	—	—	—	—	—	—	1	—	—	—	5	2	—	14
(*b*) Anæsthetic	1	—	2	—	—	—	—	3	—	—	—	—	—	—	—	1	—	—	—	1	—	—	8
Malaria (*a*) Tertian	39	1	11	73	1	36	—	—	64	—	175	—	12	100	—	41	—	79	21	10	—	47	710
(*b*) Quartan	6	13	—	—	—	—	—	—	—	31	—	—	—	—	—	9	—	—	—	—	—	—	59
(*c*) Æstivo-Autumnal	340	88	177	—	118	47	14	97	—	31	—	49	—	—	83	—	71	—	—	32	20	—	1167
(*d*) Chronic Malaria	5	280	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	285
(*e*) Blackwater	3	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Measles	2	—	—	—	—	—	—	—	—	—	4	—	—	—	2	1	—	—	—	—	—	—	9
Malta Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Plague	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pneumonia	52	—	1	1	9	4	—	9	—	—	—	—	—	—	—	—	5	2	—	2	2	3	90
Rabies	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rheumatic Fever	1	2	—	—	—	—	—	—	—	—	—	—	—	—	7	—	12	—	—	—	—	—	22
Septicæmia	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Small-pox	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	—	—	8
Syphilis (*a*) Primary	36	8	—	12	2	—	6	—	16	3	6	3	1	—	—	—	1	—	—	2	4	5	105
(*b*) Secondary	50	15	2	—	—	1	—	1	41	1	29	1	—	—	—	—	—	—	—	1	3	1	146
(*c*) Tertiary	32	72	1	—	6	22	19	39	—	13	15	—	—	16	3	12	4	15	52	74	27	13	435
Tetanus	8	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	11
Trypanosomiasis (Sleeping Sickness)	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3
Tuberculosis	52	—	1	2	4	4	—	16	—	—	—	3	—	2	5	3	—	4	—	11	1	1	109
Whooping Cough	1	8	—	—	—	10	—	1	1	4	10	—	—	—	—	5	—	6	3	—	—	3	52
Yaws	7	—	—	—	1	—	5	6	1	7	3	2	—	5	—	20	15	23	6	22	—	10	133
Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	2	2	—	1	—	1	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	8
Intoxications—																							
Alcholism	2	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	4
Morphinism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Others	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

GENERAL DISEASES—																									
Anæmia	57	26	17	15	10	8	3	6	24	2	8	8	6	—	31	—	—	27	10	16	1	4	279
Anæmia (Pernicious)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diabetes	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
Exophthalmic Goitre	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
Gout	3	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Leucocythæmia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hodgkin's Disease	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Myxœdema	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Purpura	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rickets	1	6	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	3	—	—	12
Scurvy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rheumatism	658	13	223	138	217	187	57	—	193	153	385	104	49	285	118	90	185	112	95	254	104	91	3711
Debility	169	118	6	41	15	24	6	—	3	14	19	12	11	90	36	38	71	60	17	29	3	21	803
Others	8	—	—	—	51	—	—	142	5	—	—	—	—	—	6	—	—	27	1	1	—	19	260
LOCAL DISEASES																									
DISEASES OF THE NERVOUS SYSTEM—																									
Sub-section 1.																									
Neuritis	3	20	—	—	—	1	1	9	—	—	—	—	—	—	—	3	—	—	—	—	—	1	38
Meningitis	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Myelitis	—	1	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Hydrocephalus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Abscess of Brain	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Congestion of Brain	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Others	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	5
Sub-section 2.																									
Apoplexy	5	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Paralysis	29	7	—	6	1	2	—	6	3	—	—	3	—	2	—	—	—	—	6	4	—	—	69
Chorea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Epilepsy	11	11	2	—	—	1	—	3	1	—	—	—	—	—	—	—	—	—	3	—	—	—	32
Neuralgia	64	41	15	24	4	8	6	20	24	29	11	6	6	47	5	14	52	1	5	13	2	10	407
Hysteria	6	—	—	1	—	—	—	2	1	—	—	—	—	1	—	1	—	—	—	—	—	—	12
Vertigo	1	—	2	—	—	—	—	—	—	—	—	—	—	—	9	—	—	—	1	—	—	—	13
Others	2	12	1	4	—	7	1	4	—	4	16	4	1	31	18	1	—	2	19	1	—	22	150
Sub-section 3.																									
MENTAL DISEASES—																									
Idiocy	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Mania	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	5
Melancholia	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Dementia	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	5
Delusional Insanity	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Others	—	4	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	6
DISEASES OF THE EYE—																									
Conjunctivitis	121	38	36	6	36	25	5	21	29	14	27	13	3	17	8	—	12	3	15	15	5	14	463
Keratitis	—	6	—	—	—	6	—	1	—	1	—	2	—	—	—	6	—	—	—	—	—	—	22
Ulceration of Cornea	—	5	2	—	—	2	—	2	—	—	—	1	—	—	—	—	—	—	3	—	1	1	17

Return showing Details of Cases treated in each Medical District in the Year 1915—*continued.*

Diseases.	With Medical Officers.													With Dispensers only.									Total.
	Freetown Hospital.	Cline Town.	Freetown Gaol.	Kissy.	Moyamba.	Bo.	Makene.	Bonthe.	Pujehun.	Kennema.	Waterloo.	Daru.	Wellington.	Hastings.	Regent.	Kent.	York.	Banana Islands.	Sumbuyah.	Port Lokkoh.	Balkanu.	Kaballa.	
Diseases of the Eye—*continued.*																							
Iritis	5	—	—	—	1	—	—	2	—	—	—	—	—	—	—	1	—	—	—	1	—	—	10
Optic Neuritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	1	—	4	7
Cataract	6	—	—	1	—	1	—	2	4	—	2	—	—	—	—	1	—	—	—	9	—	2	28
Other Diseases	6	39	—	—	4	—	4	5	—	1	—	2	—	1	2	—	1	1	1	2	1	3	73
Diseases of the Ear—																							
Inflammation	40	20	2	—	—	6	4	2	6	5	16	4	—	18	13	4	16	3	—	—	4	—	163
Other Diseases	60	33	7	21	26	2	1	21	17	7	2	1	—	4	7	12	—	7	5	10	5	11	259
Diseases of the Nose—																							
Others	99	94	7	7	13	32	11	11	—	11	3	6	1	49	21	5	32	14	—	6	6	9	437
Diseases of the Circulatory System—																							
Pericarditis	7	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	2	—	—	—	—	13
Endocarditis	1	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	4
Valvular—Mitral	32	6	45	25	10	6	—	13	1	2	3	—	—	3	1	6	3	4	1	6	10	—	177
Aortic	13	1	7	—	—	4	—	2	—	2	—	1	—	1	—	—	—	3	—	2	3	—	39
Tricuspid	—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Pulmonary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
Arterial Sclerosis	5	6	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
Aneurism	6	3	—	—	—	—	1	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	13
Other Diseases	8	96	7	7	1	—	—	4	—	4	—	3	2	32	3	—	—	13	2	9	4	2	197
Diseases of the Respiratory System—																							
Laryngitis	24	15	7	1	1	2	—	1	1	1	1	1	—	—	5	2	—	—	—	—	—	—	62
Bronchitis	767	549	153	205	215	208	102	155	174	136	336	90	64	163	199	130	137	114	103	144	117	136	4397
Broncho-Pneumonia	9	14	2	—	—	—	1	1	6	3	—	1	—	1	—	—	1	—	—	4	—	—	43
Abscess of Lung	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gangrene of Lung	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emphysema	7	1	2	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
Pleurisy	51	23	3	3	—	2	—	14	1	5	2	—	—	5	4	4	—	1	2	6	1	—	127
Empyema	5	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
Asthma	8	7	5	3	4	—	3	—	12	6	6	3	1	16	5	4	6	3	8	3	1	3	107
Others	3	139	18	3	—	—	1	11	3	20	—	—	—	—	—	—	—	—	—	2	1	—	201
Diseases of the Digestive System—																							
Stomatitis	26	21	8	5	11	11	3	12	3	2	—	9	1	23	43	2	8	4	4	2	1	6	205
Caries of Teeth	188	76	22	30	65	52	29	59	54	30	30	17	1	22	38	16	26	6	28	16	20	32	857
Glossitis	1	20	—	—	1	9	—	2	—	—	—	—	—	5	—	5	3	—	1	—	—	—	47
Sore Throat	44	16	6	2	11	14	3	30	4	1	4	2	—	19	11	5	15	17	1	1	—	1	207
Inflammation of Tonsils	106	36	6	9	2	13	—	8	7	3	12	—	2	24	6	7	10	10	5	5	4	9	284
Gastritis	117	27	10	8	10	12	—	3	26	3	—	1	1	1	8	2	6	1	3	4	1	—	244
Ulceration of Stomach	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1

Diseases of the Digestive System— *continued.*																							
Hæmatemesis	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
Dilatation of Stomach	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Stricture of Stomach	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dyspepsia	757	1058	158	99	102	77	52	107	34	53	292	35	44	147	201	43	132	103	41	81	16	36	3668
Enteritis	8	—	5	—	19	18	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	51
Appendicitis	4	1	1	—	—	4	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	1	15
Colitis	—	11	—	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
Ulceration of Intestines	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sprue	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	3
Hernia	68	15	5	2	3	7	1	18	12	2	4	3	1	2	3	3	1	1	4	6	7	11	179
Diarrhœa	157	84	122	26	86	49	29	36	15	28	40	36	8	39	29	6	4	9	22	37	3	27	892
Constipation	651	882	908	120	380	279	187	201	463	243	204	194	134	247	224	189	203	313	158	193	272	239	6884
Colic	37	12	31	14	3	15	3	16	1	7	15	1	5	43	11	8	12	12	8	3	4	9	270
Hæmorrhoids	11	12	2	2	2	—	—	4	3	3	3	—	2	15	5	3	21	1	—	7	1	—	97
Pancreatitis	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	4
Hepatitis (Acute)	17	7	2	7	—	1	—	12	5	—	—	1	—	—	6	1	—	1	3	1	—	6	70
Abscess	14	2	1	—	—	5	—	9	1	—	—	—	—	3	—	1	5	—	—	—	—	—	41
Cirrhosis	14	—	1	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	1	1	—	26
Jaundice	1	3	—	—	1	2	—	—	1	—	—	—	—	—	—	—	2	1	12	4	—	—	27
Peritonitis	5	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	8
Ascites	3	1	—	—	4	—	—	—	—	—	—	1	—	1	—	—	—	—	1	1	—	3	15
Pharyngitis	150	—	16	13	2	—	3	—	—	3	—	—	1	—	2	—	1	—	—	—	1	—	192
Other Diseases	57	156	2	7	1	—	5	24	—	10	—	10	3	7	27	1	2	18	3	2	20	21	376
Diseases of the Lymphatic System—																							
Splenitis	24	3	—	11	2	8	12	26	11	1	3	—	7	31	11	5	5	—	9	15	1	1	186
Inflammation of Lymphatic Gland	51	34	7	6	20	30	6	14	22	22	15	8	6	14	12	3	3	4	4	18	9	14	322
Suppuration	17	14	5	—	2	—	—	4	5	3	—	1	—	3	3	—	—	2	—	3	1	1	64
Lymphangitis	9	—	—	—	—	2	—	8	—	—	—	—	3	—	—	—	—	—	1	1	—	—	24
Elephantiasis	15	3	—	—	—	—	—	29	1	—	—	3	—	—	—	1	—	—	—	—	—	—	52
Other Diseases	—	2	—	—	—	—	2	—	—	—	—	6	—	—	—	—	—	6	—	—	2	7	25
Diseases of the Urinary System—																							
Acute Nephritis	23	18	1	1	—	2	—	2	—	—	2	—	—	—	3	—	—	—	—	3	—	1	56
Bright's Disease	22	—	5	2	1	—	—	2	—	1	5	—	1	2	4	1	—	—	3	7	3	—	59
Pyelitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Calculus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Renal Colic	3	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Cystitis	16	4	—	—	1	6	—	4	2	7	2	2	—	8	1	—	1	—	6	—	—	3	63
Vesical Calculus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Suppression	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	7
Hæmaturia	12	2	1	1	—	2	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	20
Chyluria	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Other Diseases	11	13	—	—	—	1	—	5	—	3	—	—	—	2	4	—	—	—	2	1	—	—	42
Diseases of the Generative System— *Male Organs.*																							
Urethritis	5	—	1	1	2	6	—	3	1	2	3	—	—	5	1	1	—	1	1	7	—	—	40
Gleet	4	—	4	1	—	—	—	—	—	—	—	—	—	—	—	2	7	6	—	1	—	3	28

Return Showing Details of Cases Treated in Each Medical District in the Year 1915—*continued.*

Diseases.	With Medical Officers.													With Dispensers only.									Total.
	Freetown Hospital.	Cline Town.	Freetown Gaol.	Kissy.	Moyamba.	Bo.	Makene.	Bonthe.	Pujehun.	Kennema.	Waterloo.	Daru.	Wellington	Hastings.	Regent.	Kent.	York.	Banana Islands.	Sumbuyah.	Port Lokkoh.	Balkanu.	Kaballa.	
Diseases of the Generative System—*continued.*																							
Stricture	32	10	5	2	—	1	1	5	2	6	1	—	—	11	—	—	—	—	—	1	—	3	80
Prostatitis	—	—	—	—	—	9	—	2	—	—	—	—	—	—	—	—	—	—	—	1	—	—	12
Soft Chancre	18	8	8	—	9	—	5	9	6	12	2	12	—	1	—	2	—	—	8	3	3	7	113
Condyloma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inflammation of Scrotum	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—	1	—	1	—	6
Hydrocele	23	7	—	2	7	—	1	13	18	—	2	1	—	—	—	—	2	1	1	—	4	5	87
Orchitis	25	7	7	1	13	6	3	—	10	3	—	4	—	—	—	2	2	—	11	5	9	9	117
Epididymitis	3	5	1	—	4	6	2	4	—	—	5	2	—	1	—	—	—	—	—	3	1	—	37
Abscess of Testicle	2	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	1	—	—	5
Phimosis	23	2	—	2	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	32
Other Diseases	11	4	3	3	2	—	—	7	—	1	—	5	—	—	—	—	—	1	—	—	—	2	39
Female Organs.																							
Ovaritis	2	4	—	—	—	3	—	4	—	—	—	—	—	1	3	—	—	—	—	—	—	1	18
Ovarian Cyst	4	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Endometritis	11	2	—	1	—	—	—	5	—	2	—	—	—	12	—	—	—	5	—	16	—	—	54
Displacement of Uterus	6	—	—	—	—	—	—	1	—	—	—	—	—	—	2	—	—	—	—	—	—	—	9
Vaginitis	3	3	—	—	—	—	—	1	1	1	1	—	—	—	—	3	—	—	2	—	—	—	15
Amenorrhœa	34	84	1	15	5	3	4	6	9	2	—	3	1	22	4	6	12	2	6	7	4	8	238
Dysmenorrhœa	11	54	—	6	1	2	—	6	5	2	19	2	1	13	6	4	3	4	23	3	1	7	173
Menorrhagia	21	14	—	4	1	2	—	—	5	—	1	1	1	4	1	4	—	5	—	1	—	—	65
Leucorrhœa	1	125	—	—	—	—	—	—	1	1	—	—	1	4	1	2	—	1	—	3	—	—	140
Abortion	13	25	—	3	—	—	1	—	1	—	1	—	—	4	4	—	1	2	1	1	—	—	57
Delayed Labour	75	—	—	—	—	1	—	—	—	—	—	—	—	—	3	1	—	—	—	—	—	—	80
Post-partem Hæmorrhage	2	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	1	—	—	6
Retained Placenta	4	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1	—	—	1	—	—	—	8
Premature Birth	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Puerperal Septicæmia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mastitis	5	5	1	1	—	2	—	—	—	2	1	—	3	6	—	—	1	1	1	1	1	4	35
Abscess of Breast	2	—	—	1	—	—	1	1	—	1	—	—	—	—	1	1	1	—	3	—	—	—	12
Other Diseases	44	346	—	22	1	—	2	10	—	2	—	—	1	—	—	—	—	7	2	13	—	1	451
Diseases of Organs of Locomotion—																							
Osteitis	17	—	—	—	—	12	—	25	5	1	—	1	1	—	4	2	—	—	3	3	—	—	74
Arthritis	28	323	—	4	—	109	—	39	—	5	3	1	1	2	13	1	1	—	—	2	—	1	533
Spondylitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bursitis	4	—	—	1	1	5	—	—	1	1	—	1	—	1	2	—	3	—	—	—	—	—	20
Myalgia	9	56	107	11	—	—	19	—	28	18	—	34	20	—	29	45	—	6	19	27	7	—	435
Other Diseases	99	312	18	28	26	1	65	27	47	29	—	17	6	9	16	10	38	7	25	20	11	4	815
Diseases of Connective Tissue—																							
Cellulitis	39	10	2	3	5	5	—	5	1	3	—	1	1	2	4	—	3	1	1	2	5	4	97
Abscess	104	47	4	8	26	9	8	26	20	9	4	5	—	20	9	9	7	5	18	7	—	9	354
Elephantiasis	—	—	—	—	2	—	—	2	2	—	—	—	1	—	—	—	—	1	1	—	—	—	9
Other Diseases	—	23	—	—	1	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35

DISEASES OF THE SKIN—																											
Urticaria							2	4	—	1	—	2	—	3	—	—	—	—	—	—	1	—	—	—	1	—	—	—	14
Eczema							29	13	70	6	2	8	1	8	12	15	3	2	—	9	—	2	27	4	4	2	9	16	242
Boil							58	17	6	5	13	12	1	4	11	13	8	6	—	3	7	4	4	3	11	6	7	3	202
Carbuncle							12	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15
Herpes							10	3	—	1	1	—	—	2	—	—	—	—	—	6	—	—	3	1	3	3	—	3	36
Psoriasis							7	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	8	—	—	17
Oriental Sore							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tinea							26	21	31	1	31	17	1	10	—	7	7	4	—	7	3	—	2	—	—	2	2	1	173
Scabies							26	14	18	4	38	19	6	17	84	22	5	17	3	7	7	16	21	4	8	6	7	42	391
Acne							12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
Prickly Heat							3	—	—	1	—	3	—	1	—	—	—	—	—	—	—	1	—	1	—	—	—	—	10
Ulcers							682	179	20	85	216	273	784	—	313	359	368	115	45	114	94	94	304	96	261	207	49	44	4702
Other Diseases							74	146	40	7	34	4	10	336	12	26	13	65	2	—	7	9	25	73	44	28	92	116	1163
INJURIES—																													
General							7	—	—	—	—	—	—	—	—	—	4	—	—	—	1	—	—	—	—	—	—	—	—	12
Local							1145	331	75	44	238	170	108	172	120	107	77	103	25	116	59	35	65	75	69	67	118	79	3398
SURGICAL OPERATIONS							298	—	7	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	306
TUMOURS							46	49	2	—	3	5	—	27	—	2	—	2	—	—	1	4	—	2	1	6	—	—	150
MALFORMATIONS							4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
POISONS							—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2
PARASITES—																													
Animal.																													
Protozoa							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trematoda (Flukes)							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases							—	—	—	—	1	—	—	—	—	—	—	—	—	10	—	—	—	—	—	—	—	—	11
Cestoda.																													
Tænia solium							8	37	7	17	6	—	11	6	21	16	11	3	1	14	4	2	6	—	7	5	—	14	196
Tænia saginata							1	—	—	—	—	—	—	—	—	—	63	—	—	—	—	—	—	—	—	—	—	15	79
Nematoda.																													
Ascaris							261	80	22	90	100	38	31	67	53	26	—	29	45	122	68	19	101	44	31	58	32	39	1356
Tricocephalus dispar							1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Trichina							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dracunculus							2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Filariasis							1	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Strongylus							—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ankylostomiasis							38	2	15	—	—	—	—	20	—	—	—	—	—	—	—	—	—	—	—	11	3	89
Oxyuris							—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2
Insecta.																													
Myiasis							1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Other Diseases							14	112	3	—	—	36	—	3	—	9	2	4	—	5	26	—	11	—	—	—	1	—	226
TOTALS							9317	7006	2693	1372	2355	2124	1681	2252	2412	1754	2395	1176	538	2109	1646	1026	1747	1410	1346	1698	1103	1353	50513

ANNUAL SANITARY REPORT

FOR THE YEAR ENDING 31ST DECEMBER, 1915,

BY THE

ACTING SENIOR SANITARY OFFICER.

INDEX.

I.—ADMINISTRATION.

1. Dr. R. H. Kennan, Senior Sanitary Officer, went on leave on 30th October, 1915.

2. Dr. F. J. A. Beringer, Sanitary Officer, went on leave on 7th June, 1915, returned on 20th October, 1915, and acted as Senior Sanitary Officer from 30th October, 1915, to the end of the year.

3. Dr. W. Allan, Medical Officer of Health, was seconded for duty with the Cameroons Expeditionary Force from 15th February, 1915, to 22nd July, 1915, when he left Duala on leave. He returned to Sierra Leone and resumed his duties as Medical Officer of Health, Freetown, on 13th December, 1915.

4. The following acted as Medical Officer of Health, Freetown, during the absence of Dr. Allan :—

Dr. F. J. A. Beringer, Sanitary Officer, from 17th February to 2nd June.

Dr. J. S. Pearson, Medical Officer, from 3rd June to 8th September.

Dr. W. A. Nicholson, Medical Officer, from 9th September to 12th December.

5. There was no Superintendent Sanitary Inspector at the beginning of the year. Mr. D. S. Bowen, Sanitary Inspector, Nassau, West Indies, was appointed, and arrived in the Colony on the 2nd March, 1915. The second vacancy was not filled during the year.

6. The appointment of a Second Grade Clerk approved in 1914 was not filled for financial reasons ; the office was in consequence short-handed.

7. The Sanitary Department is small and is quite unable to supervise adequately the Public Health of the population of 1,100,000 dwelling within the 34,000 square miles comprising the Colony and Protectorate of Sierra Leone.

II.—LEGISLATION.

8. The Public Health (Protectorate) Ordinance 1915 was passed during the year : it is the first Ordinance dealing with the Public Health in the Protectorate. Much valuable pioneering work had previously been done by means of "Standing Instructions," advice and persuasion. The inflow of "strangers" into the more settled community called for more definite legal powers to deal with insanitary conditions. During the year the town of Bo on the Railway was declared a "sanitary district" under this Ordinance. But no "Rules" had been applied at the close of the year.

III.—SANITARY OFFICES AND DEPÔTS, FREETOWN.

9. During the year a site was acquired for the central Sanitary Department Offices on the north side of Oxford Street facing Kroo Bay and immediately to the west of the site for the new hospital ; building is postponed for financial reasons.

IV.—STREET DRAINS AND WATER COURSES, FREETOWN.

10. The stream running from Portuguese Town spring indicated in the spot map of Freetown attached to the Annual Medical and Sanitary Report for 1912 as a natural breeding place of anopheles has been canalized ; the swampy area through which this stream runs is much improved.

11. King Jimmy Valley, near the Hospital and between Pultney and Walpole Streets, and shown on the same spot map as a natural breeding place of anopheles and culex has been dealt with by the removal of the old tank and the covering of the spring wells.

12. Apart from minor improvements here and there the streets and street drains are, in general, in the same condition as before; they give the Sanitary Department much anxiety.

V.—BROOKFIELDS DRAINAGE, FREETOWN.

13. The boreholes referred to in the last two Annual Reports were commenced.

VI.—WELLS, FREETOWN.

14. No well was compulsorily closed during the year, action being deferred until experience of the augmented water supply had been gained.

VII.—EXCAVATIONS, STONE QUARRIES, ETC., FREETOWN.

15. Undesirable stone quarrying noted in previous years still continues. The draft new Public Health Ordinance is still under consideration.

VIII.—WATER SUPPLY, FREETOWN.

16. The water supply of Freetown has given rise to much enxiety and discussion : various methods of preventing pollution have been under consideration, but a final decision has not yet been arrived at. It was understood that an outbreak of dysentery amongst the prisoners at the new gaol was attributed to the water supply, but the question of remedial measures was not referred to the Sanitary Department. The fact that there have been within the catchment areas amongst other squatters, charcoal burners, woodcutters, farmers, a new military road and watchman's dwelling have added to the difficulties of the subject. The question of re-afforestation within the catchment areas is also still under consideration.

IX.—MEAT SUPPLY, FREETOWN.

17. Towards the end of the year an agreement was come to with the Imperial Military Authorities by which they granted permission to Officers of the Sanitary Department to inspect meat slaughtered in the Imperial Slaughter House; the anomaly of meat not required by the Imperial Authorities being sold to the public without such inspection, which had given rise to comment, was thus done away with. The agreement was intended to come into force on the 1st January, 1916.

18. The following animals were slaughtered during the year in the Public and Imperial Slaughter Houses :—

Bullocks	6,355
Sheep	837
Goats	20
Swine	67

57 whole carcases, 24 quarters, and one piece were condemned on account of *Cysticercus bovis.*

19. Reference was made in the Annual Report for 1913 to the loss incurred by butchers through the destruction of meat infected with *Cysticercus bovis.* They have been advised at various times to insure against loss or to "pickle" infected meat; neither scheme has so far found favour with them.

20. The proposed building by the City Council of a new meat and fish market in the East Ward and of a new slaughter-house is under consideration. The question whether meat should be sold only in public markets or whether sale should be allowed in private butchers' shops is also under consideration. The subject is complicated by reason of a small number of butchers having been allowed in the past to sell in their own private premises, although such sale is illegal.

X.—MOSQUITO INDICES, FREETOWN.

21.

Month.	Compounds Examined.	Compounds with Larvæ.	Index.
March ...	350	3	·85 per cent.
June	350	13	3·71 „
September ...	350	50	14·28 „
December ...	250	8	3·2 „

In September water-bearing plants are included, but not in the other months; in this month larvæ were found in plants in 41 of the 350 compounds examined; the inspections were made by the Medical Officer of Health or the (European) Superintendent Sanitary Inspector.

22. Legislation dealing with water-bearing plants is being considered with the draft new Public Health Ordinance.

XI.—POLICE COURT LARVÆ CASES.

23. Cases	587
Number fined	530
Average fine	£0 5s. 0d.

XII.—RAT DESTRUCTION, FREETOWN.

24. Number of rats brought by the public and paid for (1d. per rat)	2,795
Number of rats caught by the rat-catcher	2,133
Total	4,928

The experiment of employing a rat-catcher, a calling alien to this Colony, was not as successful as had been expected; with greater experience and more training better results are hoped for.

XIII.—BURNT AREA, FREETOWN.

25. The subject was still under discussion during the year; no rebuilding was started.

XIV.—PORT SANITARY WORK, FREETOWN.

26. At the beginning of the year Dakar was still plague-infected; quarantine restrictions imposed on vessels arriving from that port were withdrawn on the 1st of February.

XV.—CLINES RAILWAY RESERVATION.

27. The water supply from the Mountain Torrent, which is liable to pollution and has given rise to disease in the past, has now been replaced by that from the Freetown water supply. Mountain Torrent water is still laid on to bath-rooms, but is nowhere connected with the town supply; the supply pipes from the two sources are painted different colours.

28. The number of West Indian employees has increased, and suitable housing accommodation could not easily be found; a West Indian Reservation is on many grounds desirable.

29. The desirability of better segregation for the Railway quarters at Clines has been advanced; segregation is far from complete.

30. The Medical Officer, Clines, in his "Sanitary Progress" report for November, states as follows:—

> "The Railway compound has been 'brushed' this month and all "the grass cut short; one or two iron pipes were found to contain a "little water, but no larvæ were present. Better arrangements are "necessary for the storing of iron castings and discarded wheels, pipes, "etc., which are very apt to accumulate water and form breeding "grounds for mosquitoes. I have found larvæ in previous times."

From this it would seem likely that mosquitoes bred in this material during the rainy period before it was brought to light by the "brushing" of the grass and weeds. The shed referred to in the Annual Sanitary Report for 1913 and not considered necessary at that time calls for reconsideration.

XVI.—HILL STATION RESERVATION.

31. The work of substituting short grass for bush continues satisfactorily. The number of bungalows for Officials, Railway Officials, the Military and Non-Officials continues to increase.

XVII.—METEOROLOGICAL RETURNS.

32. The rainfall registered at Tower Hill Observatory, Freetown, was 127·4 inches, and was greater than that of the two previous years, but less than that recorded for any of the previous years since 1895. The rainfall at Hill Station was 165·06 inches, and was greater than that of the three previous years. The average rainfall registered at Tower Hill Observatory is 146·6 inches for the last fourteen years, and 165·6 inches for the previous twenty years. The usual observations are given at the end in the form of tables.

XVIII.—BONTHE AND YORK ISLAND.

33. Each of the following Senior Medical Officers and Medical Officer stationed at Bonthe was *ipso facto* Medical Officer of Health.

Dr. C. H. Allan, Senior Medical Officer.
Dr. T. F. G. Mayer, „ „ „
Dr. H. E. Arbuckle, Medical Officer.

34. Dr. T. F. G. Mayer, Senior Medical Officer, sent in a map of Bonthe showing the positions of all houses, public tanks, dustbins, wells and other data required in the course of Public Health work; it is hoped to have this reproduced later.

35. Dr. Allan and Dr. Arbuckle sent in Reports on the splenic index of School Children at Bonthe, showing as follows:—

——	March Quarter.	July Quarter.	September Quarter.
Number Examined, Male	136	246	184
„ „ Female	53	86	126
TOTAL ...	189	332	310
Spleens, Palpable Male	31	96	62
„ „ Female	15	39	62
TOTAL ...	46	135	124
Splenic Index, Male	22·7	39	33·6
„ „ Female	28·3	45·3	49·4
TOTAL ...	24·3	40·6	40

36. The water elevator referred to in the Annual Sanitary Report for 1914 has now been repaired and is reported to be working satisfactorily.

37. An extract from the Annual Sanitary Report of the Medical Officer (Dr. H. E. Arbuckle), is appended :—

> "It was tried to get rid of crabs by pouring boiling water and coal tar "down the holes, but unfortunately without success ; practically every crab "hole, and they are legion, contains mosquito larvæ in the rainy season."

XIX.—PENINSULA VILLAGES.

38. Hitherto the Sanitary Department has been represented in the Peninsula villages by Sergeants of Police, who have been paid 3d. per day for the extra work involved ; the arrangement is obviously unsatisfactory. Owing to mobilisation, troops have been stationed in larger numbers than usual in certain of the villages, and many cases of malaria occurred. In these villages the compounds and adjacent bush were found littered with tins, bottles, etc., whilst water-bearing plants were common. A Sanitary Constable of the Sanitary Department was detailed for duty at Wilberforce and Murray Town, a small gang of labourers was engaged for each village, and the following were built :—

At Murray Town : 5 refuse bins and 1 refuse chute for conveying rubbish into the river.

At Wilberforce : 5 refuse bins.

It is hoped to extend this scheme of sanitation to other Peninsula villages.

39. Attention has been directed to the question of supplying certain of the villages in the neighbourhood of Freetown with pipe-borne water from the same sources which supply the city.

XX.—RAILWAY CONSTRUCTION.

40. Kabinkola, Mafuri and Kamabai Railway Station sites were inspected whilst the sites were in the making or had already been made, and did not commend themselves to the Sanitary Department.

41. A board on which this Department was represented was appointed to deal with sites for Government use and for trading firms in the neighbourhood of these three stations ; plans were drawn up and approved, but later it was discovered that leases had already been granted to certain firms at Kabinkola ; unfortunately the plots of land so leased are of such dimensions as to prevent the scheme of the board from being carried out in its entirety.

42. Attention was drawn to the fact that at Makene a legacy of difficult and costly public health problems was likely to be left by reason of the irregular building that was going on.

43. It is necessary to deal with the problems of town planning in the immediate neighbourhood of new railway stations ; towns are still very small or non-existent ; without an adequate scheme of control insanitary conditions will arise, as they have arisen elsewhere in West and East Africa where the growth of towns is rapid.

XXI.—SANITATION IN THE PROTECTORATE.

44. During the year on account of the war few Medical Officers were available for duty in the Protectorate.

45. Attention was paid to the following matters of a general nature in addition to others named elsewhere in this report ; (*a*) and (*b*) are still under consideration.

(*a*) Type-plan of mosquito-proof hospital ;

(*b*) Water supplies in places where there are no streams or springs (see Head XXII.);

(*c*) Rest houses; types and sites (see Head XXVI.).

46. A new era in sanitary administration in the Protectorate has been opened up by the passing of the Public Health (Protectorate) Ordinance, 1915.

47. A number of rats were caught in native villages by Dr. F. J. A. Beringer, Sanitary Officer, when on patrol from Bonthe to Yonnibanna, via Gbangbama, Mattru, Bonge, Mafwe, Sirabu, Mano, Taiama and Fundu. The species were kindly examined by Mr. Oldfield Thomas, of the British Museum (Natural History), and identified as *Epimys rattus*, and *E. erythrolencus*.

48. An outbreak of disease amongst cattle in the Sengbeh Chiefdom of the Koinadugu District was reported by the District Commissioner. 215 head of cattle died. The cause of the disease was not definitely determined.

49. "Sanitary Progress" reports are rendered monthly by Medical Officers; 38 per cent. were "nil" reports.

XXII.—WATER SUPPLIES TO TOWNS IN THE PROTECTORATE.

50. A Committee was appointed by His Excellency the Governor to report on the best form of water supply in places where there are no streams or springs; a final decision has not yet been arrived at.

51. The scheme of improving the water supply of villages by means of sinking type-wells here and there, teaching the natives how to dig them and leaving the tools with which the types were dug in the hands of responsible chiefs, was continued during the year, but the Sanitary Engineer's report on the progress made has not yet reached this Department.

XXIII.—SMALL POX.

52. Cases of small-pox are noted in Annual Reports as having occurred in the Sumbuyah District (five cases in December), Kissy (1 case in October, a Dispenser), and Port Lokkoh (3 cases in May).

53. In October two cases of small-pox were admitted to the Infectious Diseases Hospital near Freetown; the patients stated that they had come from the Karene District. As a result of this, enquiries were instituted and it was found that an epidemic of small-pox existed in that District, and has since spread to other parts of the Colony. It is an interesting and curious fact that this widespread epidemic should have been discovered through two cases of the disease being found in Freetown. Medical Officers and Dispensers were immediately sent to the infected Districts, but at the end of the year the epidemic was still spreading.

XXIV.—ENTOMOLOGY.

54. The Sanitary Officer in the patrol referred to in paragraph 47 collected a number of blood-sucking insects, which were kindly identified at the Imperial Bureau of Entomology. The list is not given here; it is numbered 727 (Af.) by the Imperial Bureau of Entomology. Much valuable entomological work was done during the year, but as reports have not yet reached the Sanitary Department office further reference to it cannot be made in this report.

XXV.—CAPE SANITARY STATION, FREETOWN.

55. In an article by Professor Warrington Yorke and Dr. B. Blacklock entitled "Notes on the Bionomics of Glossina palpalis in Sierra Leone with Special Reference to its Pupal Habitats," published in the "Annals of Tropical Medicine and Parasitology" (Vol. IX., No. 3, 1915) the authors recommended that "stripping the oil palm of the lower petioles would suffice to destroy the breeding ground" of the tsetse fly. The research was carried out on the peninsula on which the Cape Sanitary Station stands to the West of Man of War Bay; their recommendations were carried out to the extent of treating about half the area of the peninsula. The following statistics show the work done:—

I.—Labour employed.

Supervising

1 Sanitary Constable (learner) seconded from Freetown.
1 Caretaker, Cape Sanitary Station, seconded

Working

4 Headmen @ 1/- per day.
36 Labourers @ 10d. per day.

II.—Cost.

Working headmen and labourers... ... ... £41 0s. 0d.
Supervision and tools were lent.

III.—Time.

Work began on November 26th and ended on December 28th, 1915.

IV.—Work accomplished.

Number of trees dealt with 16,372

It is proposed to treat the remaining area during 1916.

56. At the extremity of the peninsula named in the last paragraph stands a Rest House, which is used from time to time by officials and others on duty and on pleasure bent. Contiguous with the Rest House and forming a wing of the building, are the quarters of the lighthouse keeper and of two labourers; the danger to the health of Europeans using the Rest House has been pointed out.

XXVI.—REST HOUSES IN THE PROTECTORATE.

57. In the latter part of 1914 a circular letter was issued to the effect that Rest Houses should not be erected less than 440 yards from a native habitation.

58. During the present year the subject was carried further in that a small number of type-plans were evolved in consultation with the District Commissioners. The types can readily be built by the natives of the different districts, as they are based upon the kind of houses which they are accustomed to build for themselves. The site of no new Rest House of this kind was referred to the Sanitary Department during the year.

59. Permanent Rest Houses were opened at Makump and Bo during the year.

XXVII.—SCHOOLS FOR THE SONS AND NOMINEES OF CHIEFS.

60. It has been definitely decided to remove the School from Bo to Kennema; a site some two miles from the town of Kennema was chosen and a preliminary survey made.

XXVIII.—CATTLE PLEURO-PNEUMONIA IN FREETOWN.

61. During the year 4 bullocks, out of a total of 8 belonging to the Sanitary Department, died or were slaughtered as a result of this disease. The infection was not traced, nor could any other case be found in Freetown.

XXIX.—THE TEACHING OF HYGIENE.

62. The Sanitary Officer gave a course of lectures on Hygiene and Sanitation to teachers in elementary and secondary schools under the auspices of the Director of Education; the lectures were illustrated by lantern slides and demonstrations. The Medical Officer of Health and Officers acting as such gave lectures and practical demonstrations to the sanitary staff.

XXX.—INFANTILE MORTALITY.

63. The registration of births and deaths is compulsory in the Colony, permissive in the Protectorate. The figures for Freetown are probably fairly accurate; causes of death are quite unreliable.

64. The Infantile Mortality—that is, the proportion which the deaths of infants under 12 months of age bears to 1,000 births—for Freetown is as follows:—

Males	364
Females	385
Both Sexes	374

If these figures are correct—and they must be taken with some degree of reserve—they show an appalling infantile mortality, but the conditions under which the native lives are in many respects appalling.

65. In Freetown the births of males are to the births of females as 110·5 is to 100, taking the figures for 1915.

XXXI.—PROTECTORATE SANITATION PRIZE WINNERS.

66. The prize winners for 1914 and 1915 are shown in the following table:—

District.	Chief.	Town.	Prize, 1914.	Prize, 1915.
Headquarters ...	No recommendations	—	—	—
Sherbro ...	No recommendations	—	—	—
Ronietta ...	Chief Samuel Margai	(Banta) Bambatuk	Sword ...	—
,, ...	,, Nuaba	Baima	—	Sword
Karene ...	,, Alimami Samba	Gbinti	Certificate	—
,, ...	,, Alikali Baba ...	Kuntaya	—	Sword
Railway ...	No recommendations	—	—	—
Koinadugu ...	Chief Dusu Suri ...	Mussaiya	Certificate	Certificate
,, ...	,, Kamba Suri ..	Kamba (Fullasabba Chiefdom)	—	Certificate
,, ...	,, Sandi	Gbania	Certificate	Certificate
Northern Sherbro	Madam Gbujahun ...	Futa (Pejeh Chiefdom) ...	—	Certificate
,,	Chief Musa	Gbangbama	Sword ...	Certificate

XXXII.—SOME DIFFICULTIES.

67. The Sanitary Department labours under certain difficulties which from time to time rise into prominence and hamper progress. During the year under review the following were particularly noticed :—

1. Absence of good maps.

2. Incomplete naming of streets and numbering of houses and, especially in regard to the latter, defective knowledge on the part of the people as to where they live.

3. Divided control of public health problems between the Senior Sanitary Officer of the Medical Department and the Sanitary Engineer of the Public Works Department.

4. Frequent unreliability of the native subordinate staff.

5. Indefinite or undefined relationship between the Sanitary and some other Departments.

6. Smallness of staff.

F. BERINGER,

6th April, 1916. *Acting Senior Sanitary Officer.*

APPENDIX.—METEOROLOGICAL OBSERVATIONS IN FREETOWN—1915.

Month.	Air Temperature in Shade.		Total Rainfall for the Month in Inches.	Atmospheric Pressure.		Remarks.
	Maximum.	Minimum.		9 a.m.	3 p.m.	
January ...	92·5	69·4	Nil.	30·039	29·805	Highest Temperature in Sun—129·0, on the 29th
Means ...	88·6	73·6		29·973	29·882	[January.
February ...	95·0	73·0	Nil.	30·028	29·840	,, ,, 137·6, on the 24th Feburary.
Means ...	90·8	75·3		29·965	29·897	
March ...	95·0	73·0	0·51	29·972	29·890	,, ,, 149·0, ,, 25th March.
Means ...	91·0	76·0		29·887	29·816	
April	95·0	70·0	6·96	29·997	29·793	,, ,, 153·0, ,, 3rd April.
Means ...	92·0	77·0		29·936	29·856	
May	93·0	70·0	9·08	30·028	29·855	,, ,, 150·0, ,, 29th May.
Means ...	89·0	75·0		29·971	29·906	
June	91·0	70·0	10·33	30·082	29·857	,, ,, 152·0, ,, 11th June.
Means ...	87·0	75·0		30·004	29·940	
July	87·0	71·0	32·71	30·133	29·902	,, ,, 149·0, ,, 14th July.
Means ...	83·0	74·0		30·029	29·379	
August ...	87·0	71·0	32·48	30·090	29·931	,, ,, 148·0, ,, 19th August.
Means ...	83·0	73·0		30·028	29·971	
September ...	90·0	70·0	24·79	30·049	29·895	,, ,, 148·0, ,, 13th September.
Means ...	85·0	73·0		30·004	29·933	
October ...	85·0	74·0	6·55	30·084	29·883	,, ,, 150·0, ,, 1st October.
Means ...	87·0	73·0		29·984	29·923	
November ...	91·0	70·0	3·98	30·065	29·860	,, ,, 142·0, ,, 3rd November.
Means ...	88·0	74·0		29·998	29·935	
December ...	94·0	70·0	0·01	30·024	29·881	,, ,, 137·0, ,, 4th December.
Means ...	89·0	74·0		29·983	29·920	

METEOROLOGICAL OBSERVATIONS AT OUT-STATIONS—1915.

Station.	Temperature.						Relative Humidity.	Total Rainfall.	Number of Days that Rain fell.	Greatest amount on one Day.	Remarks.
	Mean Maximum.	Mean Minimum.	Average Mean.	Mean Diurnal Variation.	Highest Recorded.	Lowest Recorded.					
								INS.		INS.	
Batkanu ...	88·51	70·47	79·49	18·34	103·0	57·0	76·26	115·55	155	4·00	
Bo	82·33	70·30	76·31	17·42	97·8	62·0	86·67	114·83	149	3·58	
Bonthe ...	85·39	72·96	79·17	12·21	93·0	64·0	81·60	192·21	190	7·70	
Daru	90·50	67·78	79·14	22·69	104·0	53·0	76·98	97·01	157	4·54	
Kaballa ...	88·08	63·91	75·99	24·08	100·0	51·0	78·7	102·04	150	3·41	
Kissy ...	88·63	71·91	80·27	16·60	101·0	55·0	74·01	151·23	141	7·12	
Moyamba ...	90·33	71·12	80·72	16·46	105·0	55·0	78·81	99·44	177	3·30	

No. 1.

Summary of Routine Sanitary Work done during the Year in the Town.

1. Name of Town: Freetown.

—	Approximate area.	Number of proclaimed open spaces.
1915	$2\frac{3}{4}$ square miles.	2 Public Recreation Grounds.

2. Population.

—	No. of Natives.		No. of Europeans.		Total.
	Males.	Females.	Males.	Females.	
Census of 1911	33,363 and 169 Asiatics.		558		34,090

3. Housing.

—	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses:—		
1913	77	5,349 } Including
1914	84	— } all non-
1915	98	6,033 } Europeans.
Number of Huts:—		
1913		
1914		
1915		

4. Mosquito Protection of Houses.

—			1915.
Number of European houses wholly mosquito-protected	—	—	—
Number of European houses with mosquito room	—	—	—
Number rendered during the year wholly mosquito-protected ...	—	—	—
Number rendered during the year partially mosquito-protected ...	—	—	—

5. Erection of New Buildings during the Year.

—			1915.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings.	—	—	2
Number of houses erected with sanction as to site, construction, and relation to other buildings.	—	—	70
Number of huts erected with sanction as to site, construction, and relation to other buildings.	—	—	53
Number of houses built without sanction	—	—	—
Number of huts built without sanction	—	—	—

Excludes Hill Station, Clines Railway Reservation and Barracks.

Action taken :—

—	Number of Prosecutions.		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1915	—	—	—	—

6. Markets.

——	Total Number.	Number paved and drained.	Number unpaved.
1913	6	4	2
1914	6	4	2
1915	6	4	2

7. Slaughter-houses.

——	Total number.	Total paved and drained.	Number unpaved.
1913	1	1	—
1914	2	2	—
1915	2	2	—

8. Latrines.

——	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1913	9	23	9	21
1914	9	23	9	21
1915	9	23	9	21
Number of New Public Latrines erected during year :—				
1913	—	—	—	—
1914	—	—	—	—
1915	—	—	—	—
Number of Public Latrines repaired during year :—				
1913	5	—	5	—
1914	—	—	—	—
1915	—	—	—	—
Number of Public Latrines demolished during year :—				
1913	—	—	—	—

———	1913.	1914.	1915.
Number of Private Latrines	125	132	184
Average number of pails of nightsoil removed daily	191	212	251
Average number of soiled pails removed and clean pails substituted ...	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta ...	—	—	—
Number of cesspools	3,697	3,182	4,135
Number of cesspools cleansed	205	1,348	972
Number of new cesspools constructed during the year	75	95	135
Number of old cesspools abolished	98	732	150
Number of cesspools oiled regularly by Department	153	705	560

1 Public and 1 Imperial Slaughter House.

9. Removal of refuse.

——	1913.	1914.	1915.
Number of dustbins	65	74	91
Number of carts (if employed) at work, etc. (working intermittently)	3	3	5
Amount of refuse removed daily from streets	—	—	—
Number of carts (if employed) at work daily, etc.	—	—	—
Amount of refuse removed daily, etc.	—	—	—
Number of men employed for moving refuse (average)... ...	86	175	175

10. Mode of disposal of excreta, refuse and offal.

——	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter-house and market offal.		
			1915.			1915.			1915.
Buried or trenched									
Burnt									
Thrown into Sea									
*Otherwise dealt with									

* State mode of disposal.

11. Average daily number of canoe-loads of tin cans, bottles, broken crockery and other incombustible material removed from houses, huts and compounds and dumped in the sea.

		1915.
		3,288

12. Water Supply.

Nature of Water Supply.	1913.	1914.	1915.
Pipe-borne water :—			
Source (river, lake or spring)	Streams.	Streams.	Streams.
Number of linear yards	—	—	—
Number of stand pipes along roads	185	190	—
Number of stand pipes in compounds and houses	*210	207†	—
Wells :—			
Public :—			
Number	—	—	6
Number with pumps protected against surface water and mosquito-protected	—	45	—
Private :—			
Number	683	—	638
Number protected against surface water and mosquito-protected	—	—	8

Also * Premises with 550 taps † Private Services with 653 taps. Government Services with over 200 taps.

12. Water Supply—*continued.*

Nature of Water Supply.	1913.	1914.	1915.
Tanks :—			
Public :—			
Number underground	—	—	—
Number mosquito-protected and served by pumps	—	—	—
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Private :—			
Number underground	—	—	—
Number mosquito-protected	—	—	—
Number above ground	41	43	43
Number mosquito-protected	2	11	11
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Nature of tanks :—			
Wood	—	19	19
Iron	27	21	21
Concrete	14	3	3
Barrels :—			
Number	928	1,025	1,213
Number mosquito-protected	63	12	6

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry Drains :		
Lineal yards of masonry drains :—		
1913	—	—
1915	—	—
Lineal yards reconstructed during the year :—		
1913	200	—
1915	400	—
Lineal yards repaired during the year :—		
1913	410	406
1915	—	—
Lineal yards of new drains constructed during the year :—		
1913	300	475
1915	370	—
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1913	5,700	—
1915	—	—
Number of linear yards of ditches dug and graded :—		
1913	8,400	—
1915	540	—
Average frequency of clearing ditches of grass :—		
1913	12	—
1915	—	—

14. Clearance of undergrowth, long grass and jungle.

——	1913.		1915.
Number of square yards of weeds, grass, and vegetation cut and removed	1,000		
Average frequency of clearance of rank vegetation on same area	4		

15. Excavations and low-lying land.

——	1913.		1915.
Number of pools and excavations	—	—	—
Number of excavations filled up	—	—	—
Amount of low-lying and marsh land raised and drained	—	—	—
Number of pools, marshes, streams, etc., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	2,000	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools, etc. ...	—	—	—

16. Oiling.

——	1913.	1914.	1915.
Number of drains oiled... ... ... }	13,256	28,341	13,742
Number of pools and excavations oiled ... ... }			
Number of tanks and barrels oiled	760	92	130
Average number of men daily employed for oiling drains, pools, water-tanks or barrels	5	7	5·86*

* May be employed on other duties.

17. Inspections and Prosecutions.

——	1913.	1914.	1915.
Number of inspectors employed	19	19	19
Number of houses inspected	64,552	87,259	94,760
Number of houses where larvæ were found	1,104	847	624
Number of notices served to remove conditions causing the breeding of larvæ	12	35	6
Number of persons fined for having mosquito larvæ on premises ...	736	595	530
Number of notices served to remove insanitary conditions on premises	4,029	4,915	5,597
Number of persons fined for not removing insanitary conditions after notice	128	372	414
Number of soda and aerated water factories inspected	1	1	1

No. 2.

Summary of Routine Sanitary Work done during the Year in the Town.

1. Name of Town: Bonthe.

—	Approximate area.	Number of proclaimed open spaces.
1915	250 acres.	—

2. Population.

—	No. of Natives.		No. of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1915	2,200	2,600	31	7	4,874
	Syrians.		Indians.		
	26	8	2	0	

York Island.

European.		Native.	
Male	7	Males	350
Female	0	Females	380
Total	737		

3. Housing.

—	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses:—		
1913	23	1,026
1914	13	1,030
1915	13	1,040

Number of Huts:—Classed as houses.

4. Mosquito Protection of Houses.

——	1913.	1914.	1915.
Number of European houses wholly mosquito-protected	—	—	—
Number of European houses with mosquito room	3	4	4
Number rendered during the year wholly mosquito-protected ...	—	—	—
Number rendered during the year partially mosquito-protected ...	—	1	—

5. Erection of New Buildings during the Year.

———	1913.	1914.	1915.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	—	—	—
Number of houses erected with sanction as to site, construction, and relation to other buildings	35	21	35
Number of huts erected with sanction as to site, construction, and relation to other buildings	25	—	—
Number of houses built without sanction	—	—	1
Number of huts built without sanction	—	—	—

Action taken :—

—	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1913	—	—	25	—
1914	—	—	—	17
1915	—	1	—	24

6. Markets.

—	Total number.	Number paved and drained.	Number unpaved.
1913	2	2	—
1914	2	2	—
1915	2	2	—

7. Slaughter-houses.

—	Total number.	Total paved and drained.	Number unpaved.
1913	1	1	—
1914	1	1	—
1915	1	1	—

8. Latrines.

—	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of Public Latrines :—				
1913	5	18	—	—
1914	6	24	—	—
1915	6	25	—	—
Number of New Public Latrines erected during year :—				
1913	—	—	—	—
1914	1	6	—	—
1915	1	3	—	—
Number of Public Latrines repaired during year :—				
1913	2	—	—	—
1914	2	4	—	—
1915	1	2	—	—
Number of Public Latrines demolished during year :—				
1913	1	—	—	—
1914	—	—	—	—
1915	1	2	—	—

—	1913.	1914.	1915.
Number of Private Latrines	—	14	13
Average number of pails of nightsoil removed daily	17	14	13
Average number of soiled pails removed and clean pails substituted ...	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	—	3	3
Number of cesspools	—	1	—
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	1	—
Number of cesspools oiled regularly by Department	—	—	—

9. Removal of refuse.

——	1913.	1914.	1915.
Number of dustbins	19	22	22
Number of carts (if employed) at work, etc.	—	—	—
Amount of refuse removed daily from streets (hammock loads) ...	58	29	15
Number of carts (if employed) at work daily, etc.	—	3	—
Amount of refuse removed daily, etc. (hammock loads)	—	—	61
Number of men employed for removing refuse	20	16	20

10. Mode of disposal of excreta, refuse and offal.

——	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter house and market offal.		
	1913.	1914.	1915.						
Buried or trenched	—	6	8	—	—	—	—	—	—
Burnt	—	—	—	—	—	—	—	—	—
Thrown into Sea	—	30	36	—	—	—	—	—	—
*Otherwise dealt with	—	—	—	—	—	—	—	—	—

* State mode of disposal.

11. Average daily number of cartloads of tin cans, bottles, broken crockery, and other incombustible material removed from houses, huts and compounds.

1913.	1914.	1915.
—	6	5

12. Water Supply.

Nature of Water Supply.	1913.	1914.	1915.
Pipe-borne water :—			
Source (river, lake or spring) :—			
Number of linear yards	—	—	—
Number of stand pipes along roads	—	—	—
Number of stand pipes in compounds and houses ...	6	—	—
Wells :—			
Public :—			
Number	10	2	2
Number with pumps protected against surface water and mosquito-protected	10	2	2
Private :—			
Number	340	140	140
Number protected against surface water and mosquito-protected	20	140	140
Tanks :—			
Public :—			
Number underground	—	—	—
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground	3	4	3
Number mosquito-protected	3	4	3
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	4	—	4

12. Water Supply—*continued.*

Nature of Water Supply.	1913.	1914.	1915.
Tanks :—			
Private :—			
Number underground	—	—	—
Number mosquito-protected	—	—	—
Number above ground	—	20	20
Number mosquito-protected	—	20	20
Number of 400 gallons capacity or less	—	12	12
Number above 400 gallons	—	8	8
Nature of tanks :—			
Wood	—	—	—
Iron	3	20	20
Concrete	4	—	—
Barrels :—			
Number	6	18	16
Number mosquito-protected	—	18	16

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry Drains :—		
Lineal yards of masonry drains :—		
1913	—	
1914	400	
1915	540	
Lineal yards reconstructed during the year :—		
1913	—	
1914	—	
1915	—	
Lineal yards repaired during the year :—		
1913	—	
1914	—	
1915	10	
Lineal yards of new drains constructed during the year :—		
1913	—	
1914	—	
1915	140	
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1913	—	
1914	2,000	
1915	2,200	
Number of linear yards of ditches dug and graded :—		
1913	—	
1914	200	
1915	100	
Average frequency of clearing ditches of grass :—		
1913	Twice a year	
1914		
1915		

14. Clearance of undergrowth, long grass and jungle.

——	1913.	1914.	1915.
Number of square yards of weeds, grass, and vegetation cut and removed	—	10,000	12,000
Average frequency of clearance of rank vegetation on same area ...	—	—	Twice a year.

15. Excavations and low-lying land.

—	1913.	1914.	1915.
Number of pools and excavations	4	—	—
Number of excavations filled up	5	5	—
Amount of low-lying and marsh land raised and drained	—	¼ acre.	⅛ acre.
Number of pools, marshes, streams, etc., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	100	50
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools, etc. ...	8	2 for 6 months.	2 for 3 months.

16. Oiling.

—	1913.	1914.	1915.
Number of drains oiled ... ... } Number of pools and excavations oiled ... ... }	18	—	—
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, water tanks or barrels	—	—	—

17. Inspections and Prosecutions.

—	1913.	1914.	1915.
Number of inspectors employed	2	2	2
Number of houses inspected	67	100	100
Number of houses where larvæ were found...	37	45	15
Number of notices served to remove conditions causing the breeding of larvæ	27	2	1
Number of persons fined for having mosquito larvæ on premises ...	37	55	9
Number of notices served to remove insanitary conditions on premises	—	10	404
Number of persons fined for not removing insanitary conditions after notice...	158	168	67
Number of soda and aerated water factories inspected	—	—	—

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